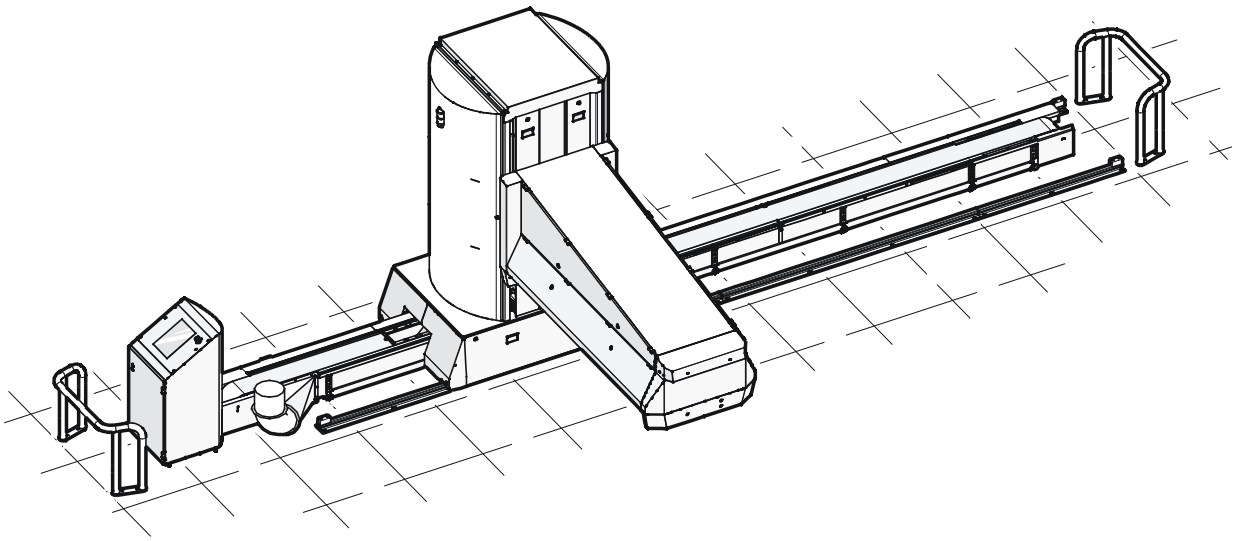
RIETER

Operating Manual

UNIfloc A11



This manual is to be handed over to the person who has been delegated to do the corresponding job. If this manual is not made available to that person at all times it cannot achieve its purpose.

Rieter Textile Systems
Klosterstrasse 20, 8406 Winterthur

All rights to this manual and all supplements which are loaned out to the user personally remain the property of the company. They may not be copied without the written permission, nor may they communicated nor made available to third persons.

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Preface

The information contained in this manual is intended to assist the smooth, trouble-free running of the machine and the safety of operators and maintenance personnel.

The manual contains important notes on how to operate the machine safely, properly and efficiently. By observing these instructions you can help prevent danger, reduce repair costs and downtimes, as well as increasing the reliability and lengthening the service life of the machine.

The manual must be permanently available at the location of the machine.

The manual must be read and followed by everyone who is assigned to work on the machine.

All electrical schematics with relevant information are located in the control cabinet.

The manual corresponds to the technical state of the art at the time of going to press.Rieter reserves the right to carry out modifications.

Inquiries concerning Service information should be addressed to the Service Centre responsible for your region.

The manual must be completed as necessary by adding directions based on existing national regulations for the prevention of accidents and the protection of the environment.

The original operating manual was written in German.

A11

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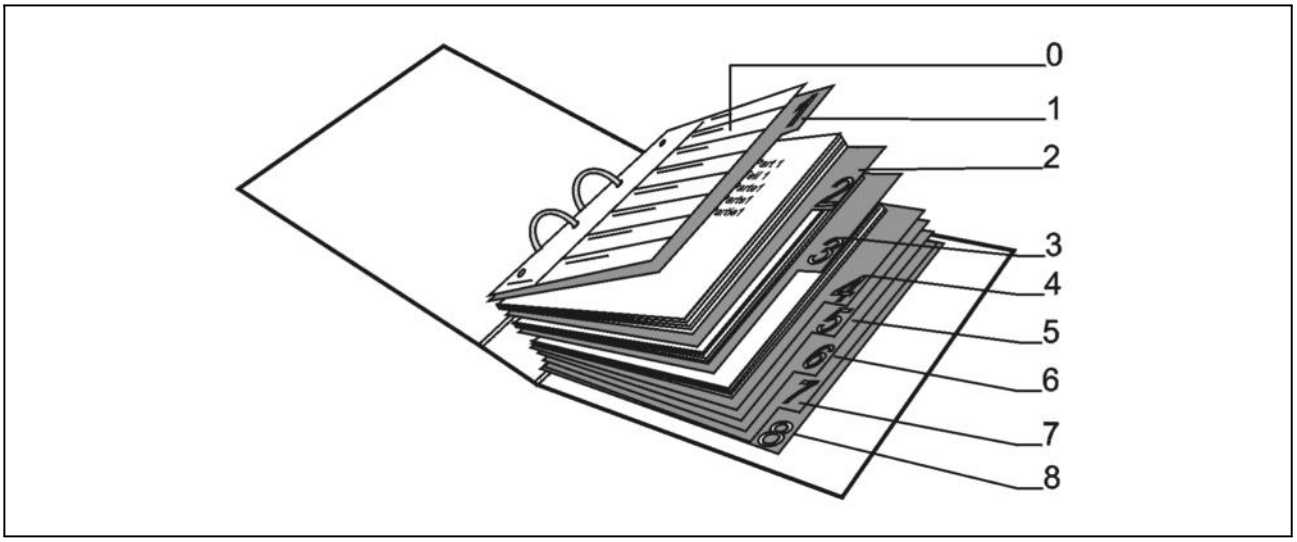
1 How to use the operating instructions

1.1 Structure of the operating instructions

Structure of the operating instructions



0 Preface, Register, Table of contents of file

The operating instructions is divided into parts.

Each part deals with specific subjects and is intended for particular users.

1 Part 1: General

General information, information about planning installations.

2 Part 2: Operation

Contains all the information with which the operator must be familiar in order to operate the product safely.

3 Part 3: Setting up, preparing, adjusting

Contains information about setting up the plant to meet the specific requirements and adapting it to the environment, especially as regards the material to be processed, and optimizing quality and productivity.

4 Part 4: Maintenance

Contains all necessary information about the internal planning of maintenance work This part contains detailed instructions for cleaning and lubrication

For more details about maintenance work such as changing wearing parts, checks and settings, please see cross-reference to the description in Part 6.

5 Part 5: Troubleshooting

The information provided in this part is intended to assist in finding and eliminating the cause in the event of a malfunction (malfunctions, warnings, messages).

6 Part 6: Description of machine subassemblies

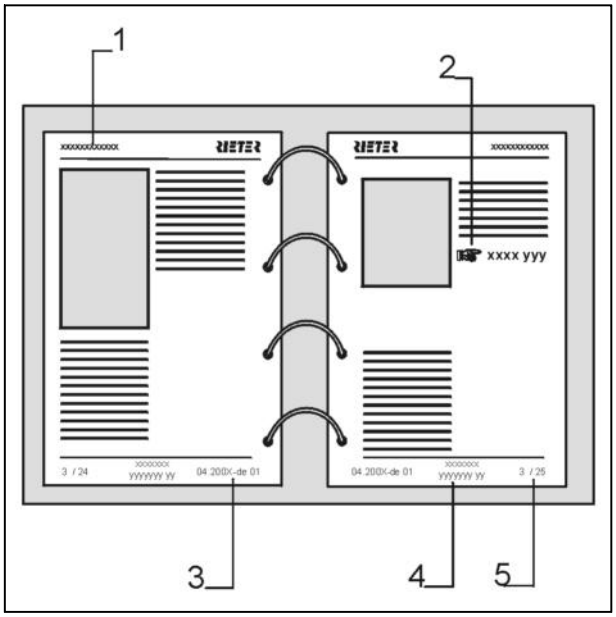
In this part the following job descriptions are listed according to subassembly: Settings, checks as well as assembly and disassembly jobs.

All job descriptions for a subassembly and the necessary information concerning the function of a subassembly are grouped together in sections.

7 Part 7: Keyword index

8 Part 8: Appendix

Example of a page with orientation elements



1 *Description of a section*

2 *Cross-reference indicating page*

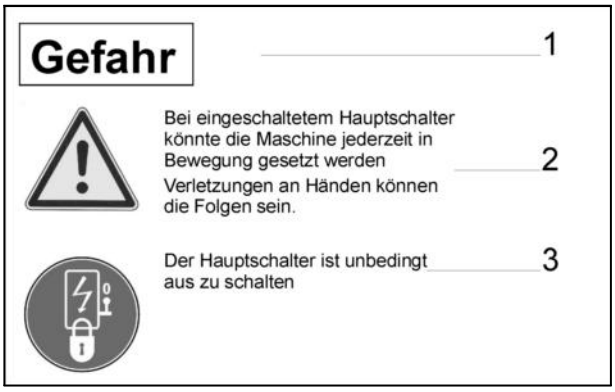
3 *Date of publication, language and version of document*

4 *Machine type and name of part*

5 *Part / Page*

1.2 Symbols

Safety information, example


Gefahr
1
Bei eingeschaltetem Hauptschalter könnte die Maschine jederzeit in Bewegung gesetzt werden
Verletzungen an Händen können die Folgen sein.
2
Der Hauptschalter ist unbedingt aus zu schalten
3

1 *Signal word*

"Danger", "Warning", "Caution", "Important" classify the safety precautions.

2 *Risk*

Description of the risk situation The potential consequences of the damage are also described. The description of the risk involved is emphasised by a symbol.

3 *Directions for avoiding danger*

Description of what needs to be done or avoided in order to prevent accidents and damage occurring. The direction for avoiding danger can be emphasised by a command or prohibition symbol.

It is absolutely essential to observe the safety precautions.
Safety precautions are classified and highlighted by signal words.

The example shows a safety precaution indicated by the signal word "Danger".

DANGER
Maximum danger level. This is used in the case of risks where there are very far-reaching consequences, with fatal injuries, irreversible or incurable injuries and very serious but curable injuries "DANGER" is only used when damage is highly likely to occur due to improper behavior

WARNING
Second highest level of danger used for risks where there are far-reaching consequences, the same as at maximum danger level.. Unlike maximum level, "WARNING" is used where the probability of damage occurring in the case of improper behavior is only slight.

CAUTION
Moderate level of danger is used in the case of risks where the consequences are less serious, completely curable injuries to only slight injuries with short absence from work. Also used for damage to property with far-reaching consequences.

IMPORTANT
Low level of danger is used when there is a risk of slight damage to property.

Danger symbols

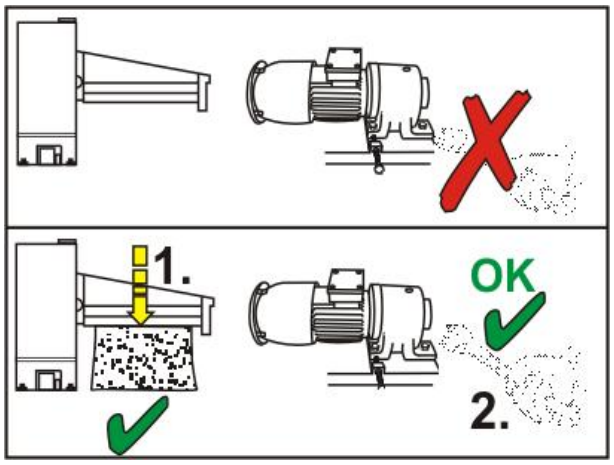
Risk of injury

Dangerous voltage

Shock from capacitor

General danger spots

Potentially explosive materials



Lift drive hazard

Precaution symbols

No admittance to unauthorized persons

No admittance

Shut down power before working on the installation.

Turn off main switch and secure with a padlock

Symbols

The page indicated refers to the currently selected chapter.

More information on this subject can be found on the page indicated

Wrong application, not permissible

Correct application, OK

Outcome. For example, after a job sequence unit

2 Legal stipulations

2.1 Liability

If, contrary to regulations, the assembly of new or existing plant is carried out by a third party, RIETER MACHINE WORKS LTD. declines all liability.

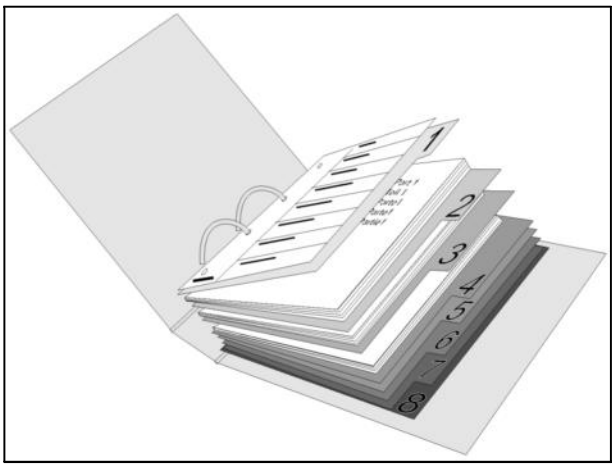
The auxiliary agents supplied by Rieter such as crane, roll lifter etc.must be used only at the places and on the types of machine intended and for no other purpose .RIETER MACHINE WORKS LTD. declines all responsibility for any damage due to inappropriate usage of the auxiliary agents

If the machine is used for any purpose other than that for which it is intended, RIETER MACHINE WORKS LTD. declines all liability.

3 General notes on safety

3.1 Safety precautions

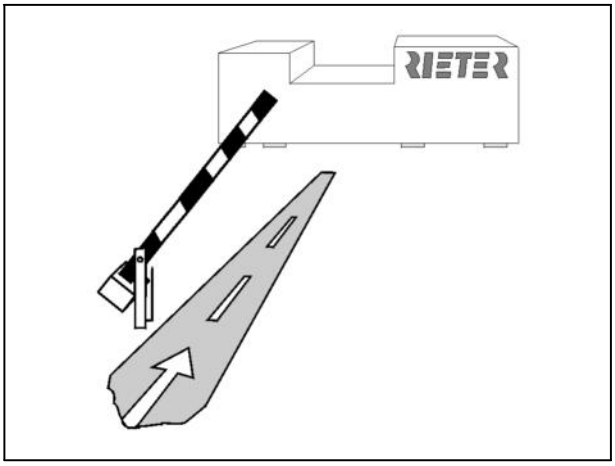
Availability of the operating instructions



All manuals, especially documents relating to safety, must be kept in a place where the staff can consult them freely.

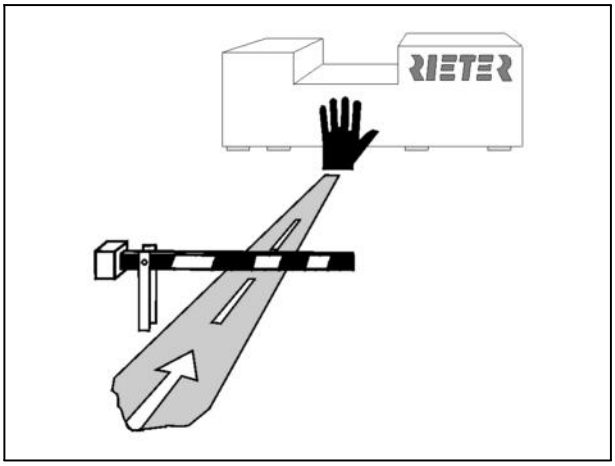
Only those who have access to correct information can work safely and efficiently.

Access available only for trained and authorized persons.



Appropriate steps must be taken to ensure that only authorized and/or trained staff have access to the machines.

No admittance to unauthorized persons



Appropriate structural and organizational steps must be taken to ensure that non-qualified persons cannot have access to the machines.

Regional safety regulations

Local safety regulations and laws in force in the individual countries must be observed. .

Obligatory notification

Should an accident occur on a machine or should it become clear that operating a machine constitutes a potential danger, Maschinenfabrik RIETER AG, CH-8406 Winterthur, must be informed immediately in writing.

Maschinenfabrik RIETER AG declines all liability for any damage that may occur due to failure to observe this regulation.

Work on electric components

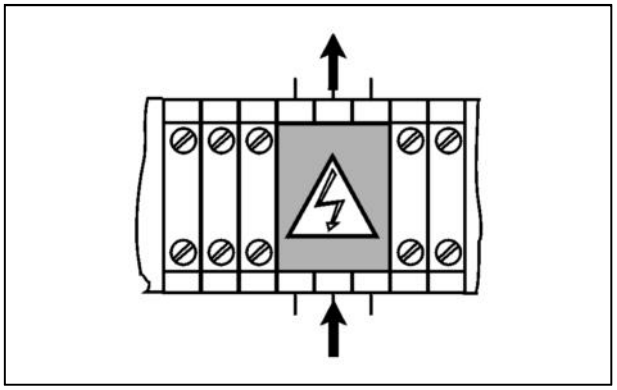
With the machine shut down, turn off the main switch and secure with a padlock.

Only qualified electricians may work and carry out checks in the electric and electronic areas.

For operational checks and troubleshooting in test operating mode, it may be necessary to work with live voltage on certain units. This kind of work demands particular care and attention, with instruments and tools in perfect working order.

In order to guarantee correct operating process the sensors must not be actuated during normal running.

External voltage

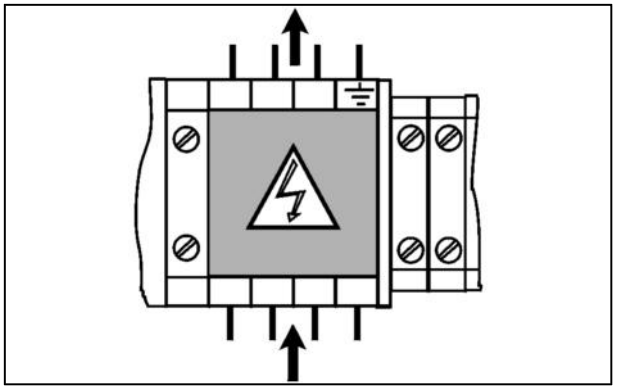


Certain circuits may still be carrying live voltage even when the main or safety switch is off.

These circuits are marked at the terminals as shown.

Particular care and attention is required in this area.

Supply line



The supply line to the main switch is live even when the main switch is off.

The terminals of the supply line are marked as shown.

Particular care and attention is required in this area.

Covers that are tightly screwed down

Covers that are tightly screwed down, as well as inspection windows and piping, must not be removed unless operating conditions on the machine are safe.

Operating conditions on the machine are not safe unless the following requirements are met. The main switch or safety switch must be turned off and secured with a padlock. In addition, no components must be moving.

The covers must be put back in place before the machine is put back into operation again.

Maintenance work

Observe the maintenance regulations of the machine concerned.

During maintenance work, turn off the main or safety switch and secure with a padlock.

This prevents the machine being inadvertently switched on by a third person.

Auxiliary agents and tools

Auxiliary agents such as ladders, hoisting devices etc. must be in perfect condition.

Tools and other auxiliary agents must not be deposited on machines that are running.

Falling objects may cause accidents or damage.

Whenever chemicals such as solvents are used, the instructions of the manufacturer concerned must be observed.

If work is carried out in which the danger of eye injury is not fully excluded, protective goggles must be worn. This applies particularly to cleaning jobs involving compressed air.

Oil or grease residue on the floor must be removed at once.

Suitable clothing

For operating reasons, it is not possible to secure all rotating or moving parts of a machine against accidents. The risk of accidents in such areas can be considerably reduced by wearing appropriate clothing.

Do not wear loose clothing (wide open sleeves, scarves, ties etc.)

Long hair must be specially protected. Always wear a cap.

Always wear protective goggles for grinding work.

Do not wear rings on your fingers or wristwatches.

Do not carry tools in open breast pockets. These objects might drop out or fall into the machine.

Work on buildings and installations in the vicinity of the machine

If it is necessary to carry out such work, the machine must be shut down. This applies particularly if it is necessary to work above the machine.

Do not climb onto the machine or use it as "scaffolding".

Alterations to machines and appliances

The machines are constructed in accordance with the state of the art.

The machines are tested and approved only in their original versions.

Installing parts made by other manufacturers may alter the characteristics of a machine and impair its operating reliability. Maschinenfabrik Rieter AG declines all liability for any damage of this nature.

Disposal

In the event of the machine being definitively decommissioned, the laws and regulations in force in the particular country must be obeyed concerning reutilization, recycling, waste disposal.

Any oil, grease or batteries contained in the machine must be disposed of in accordance with the regulations in force.

Think safe.

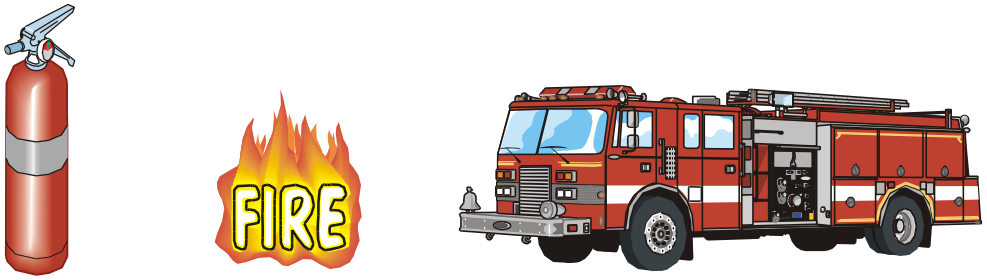
For reasons related to operability, productivity etc. it is not possible to eliminate completely all sources of danger.

Particularly in such cases, overestimating one's own abilities or thinking along the lines of: "It won't happen to me" is one of the .greatest sources of danger.

Daily routine jobs also demand constant attention.

Thinking safe reduces the risk of injury and is therefore never a waste of time.

Fireproofing textile machines



Type of danger

Locally contained fires may break out during various textile processes due to the inflammation of fibers, fly or fiber dust, especially where cotton comes into contact with friction-heated bearings, sparks from metallic trash and electric sparks.

Such fires on our textile machines may cause slight damage to property or the environment and there is a low probability of personal injury by burning or inhalation of toxic smoke.

Accordingly, manually operated fire extinguishers must be provided in the spinning mill suitable for combatting fires of the following categories:

Fire classification A:
Solid materials, mainly of an organic nature, which would normally burn when exposed to glowing heat, such as textiles (fibers, fly or fiber dust), compound materials containing rubber.

Fire classification B:
Liquid or liquefying materials, such as oil, grease, paint, resin, wax, plastic.

Suitable extinguishing agents must be supplied according to this division into fire classification categories. These may be e.g.:

water, with or without additives, for reducing the surface tension for instance.

foam

powder

quenching gases e.g. carbon dioxide, nitrogen, argon and mixtures

The use of powder extinguishers of this fire classification is also permitted to extinguish fires on low-voltage equipment. To reduce subsequent damage due to soiling, however, we strongly recommend the use of quenching gases.

Number, size and distribution of fire extinguishing gear must be determined in consultation with the regional offices responsible for firefighting.

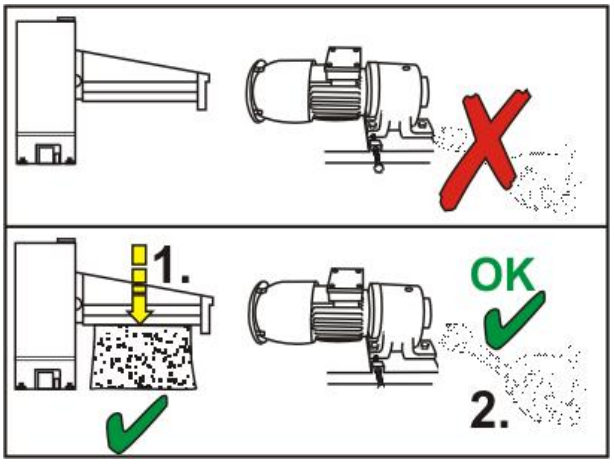
Furthermore, the personnel must be instructed in the use of the fire extinguishing gear, escape routes etc. in accordance with regional regulations and bylaws.

Every operator of textile machinery must actively support fire-protection and firefighting in his/her company.

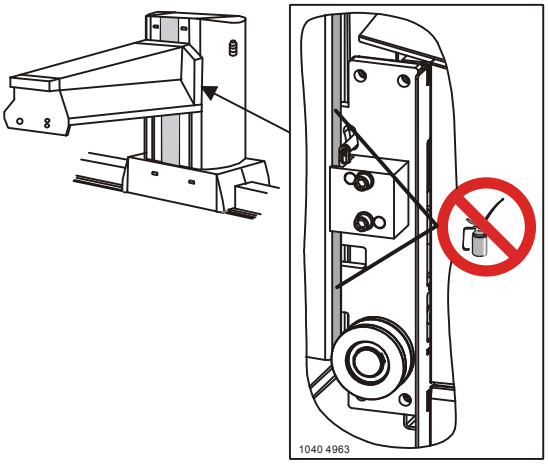
3.2 Warning symbols on the machine

Do not touch

Never stand beneath the take-off unit



Lift drive hazard



The guide profiles for the take-off unit must never be lubricated.

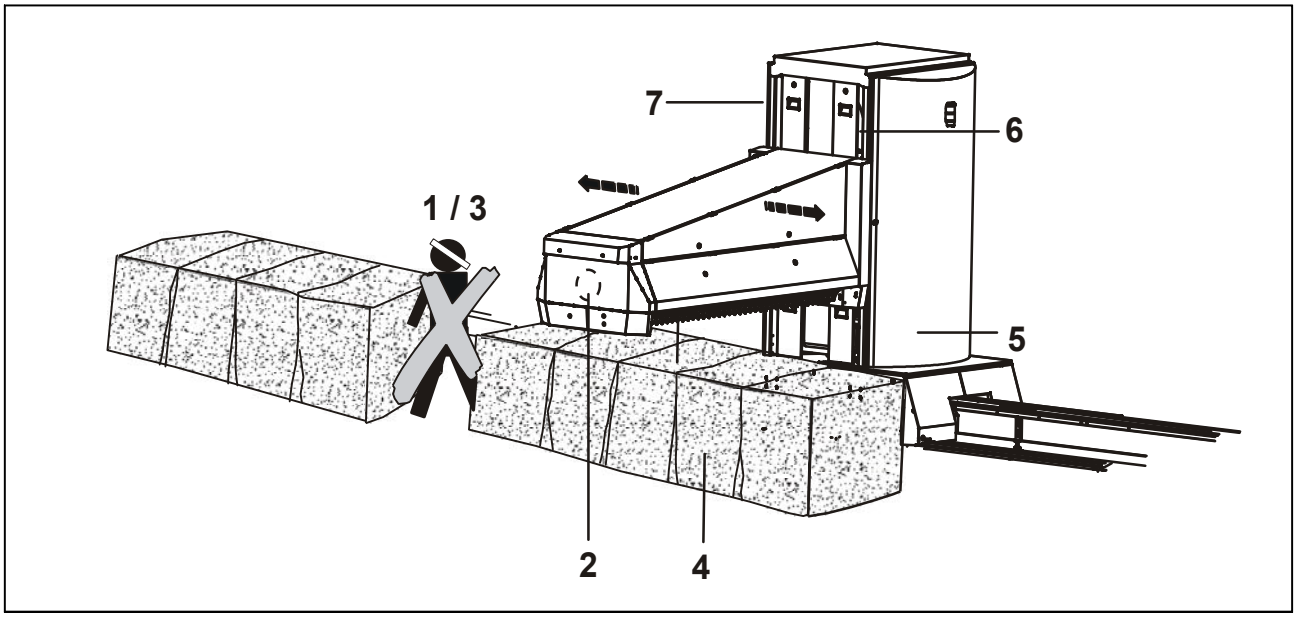
Shock from capacitor

3.3 Danger areas

3.3.1 Overview of hazard zones

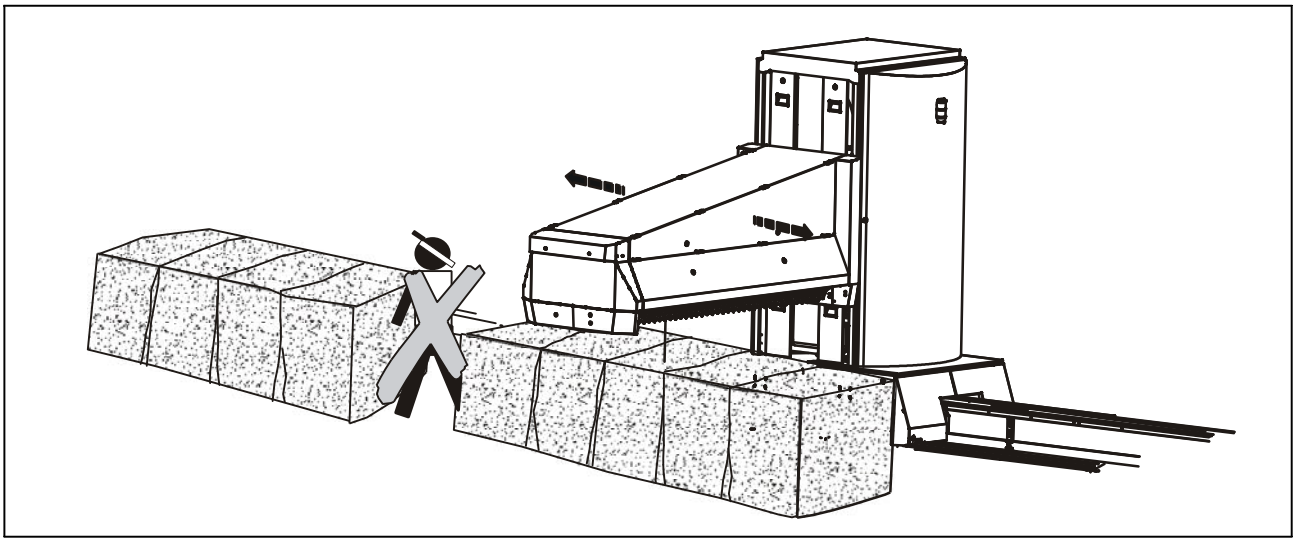
WARNING
There is increased risk of injury at the places where warning signs have been placed on the machine.
It is a danger in itself not to be aware of all of the hazard zones.
Risk of damage
Special care and caution is required at these places.
Damaged or missing warning signs must be replaced immediately.

For the areas listed, there is an increased risk of injury in the event of improper conduct. Safety regulations must be strictly observed in these areas.



1	☞ *Hazard zone in the transport area , Page 1/15*	*5*	☞ *Hazard when working on the lift drive, Page 1/17*
2	☞ *Working in the vicinity of the take-off roller, Page 1/15*	*6*	☞ *Guide profiles for the take-off unit, Page 1/18*
3	☞ *Working beneath the take-off unit, Page 1/16*	*7*	☞ *Hazardous voltage, Page 1/19*
4	☞ *Hazard when opening bales, Page 1/16*	*Frequency converter*	☞ *Frequency converter, Page 1/19*

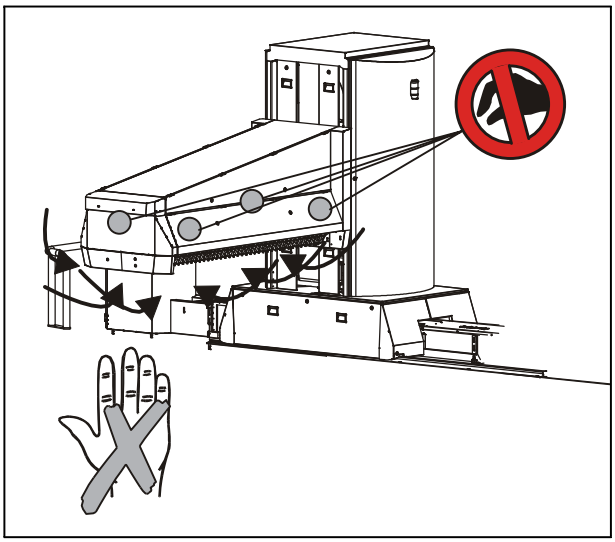
3.3.1.1 Hazard zone in the transport area



Entering the bale lay-down area or the transport area during the take-off process is strictly prohibited.

DANGER
No admittance to danger area

3.3.1.2 Working in the vicinity of the take-off roller



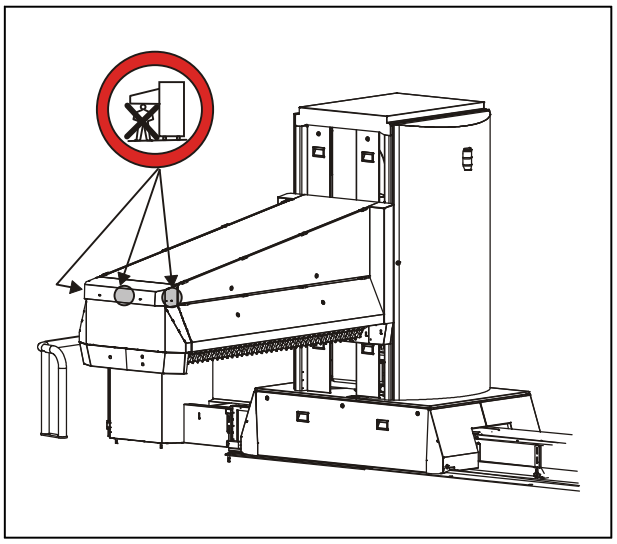
Never reach into the area near the rotating take-off roller!

Do not remove trapped fibres (fibre bunches) unless the main switch is off!

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

The purpose of the warning signs attached to the machine is to draw attention to the hazards at this point.

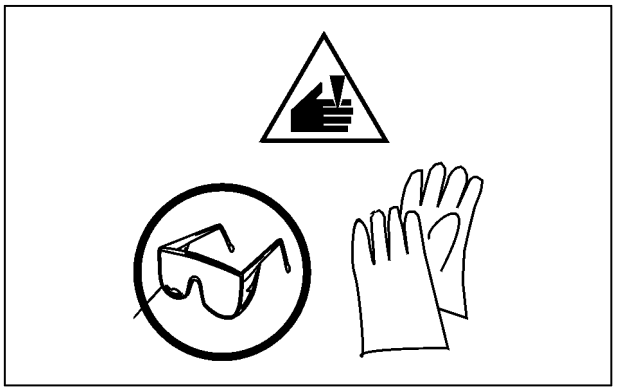
3.3.1.3 Working beneath the take-off unit



Never stand beneath the take-off unit!

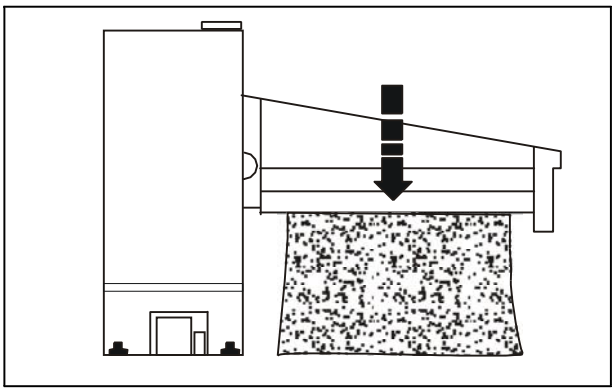
The purpose of the warning signs attached to the machine is to draw attention to the hazards at this point.

3.3.1.4 Hazard when opening bales



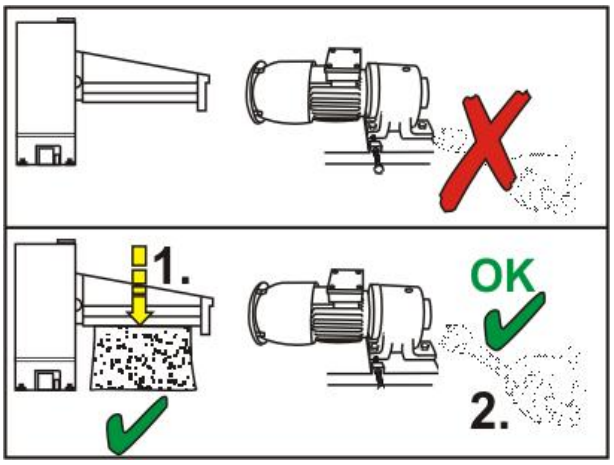
Risk of injury when cutting and removing the steel bands.
It is imperative you protect your head (wear helmet with visor) or safety goggles and gloves.

3.3.1.5 Hazard when working on the lift drive



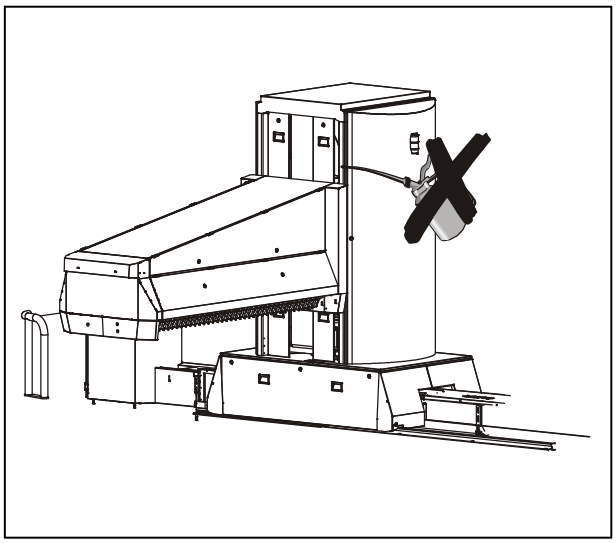
To carry out work on the lift drive, the take-off unit has to be supported/braced and the main switch has to be turned off.
Lower the take-off unit onto the bale feeder or a pallet in the corresponding data mask.

A warning sign is on the motor It also points out that work on the lift drive must not be carried out unless the take-off unit is properly supported.

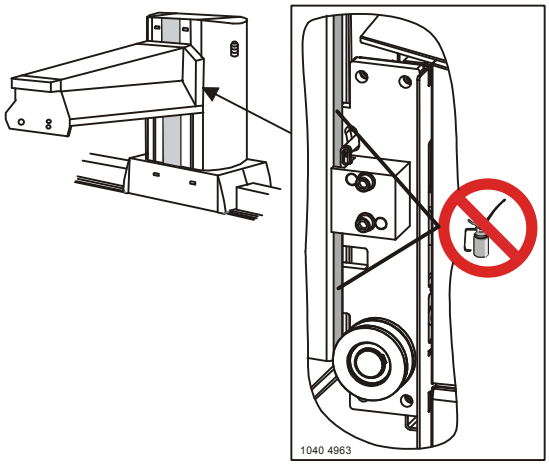


The purpose of the warning signs attached to the machine is to draw attention to the hazards at this point.

3.3.1.6 Guide profiles for the take-off unit

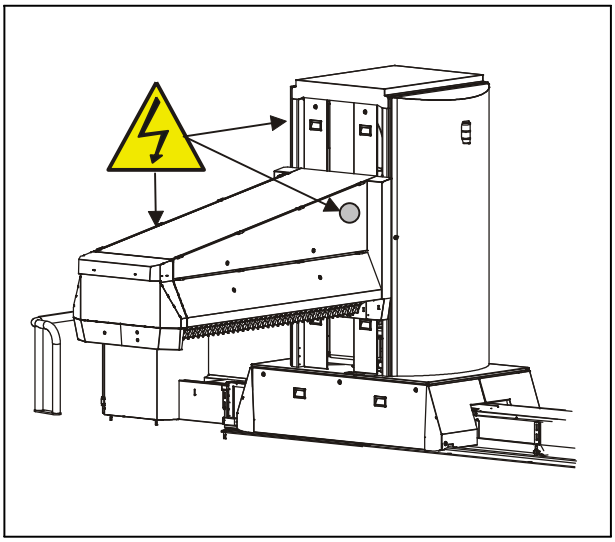


To avoid any possible malfunction with the anti-drop device for the take-off unit, the guide profiles must never be lubricated.



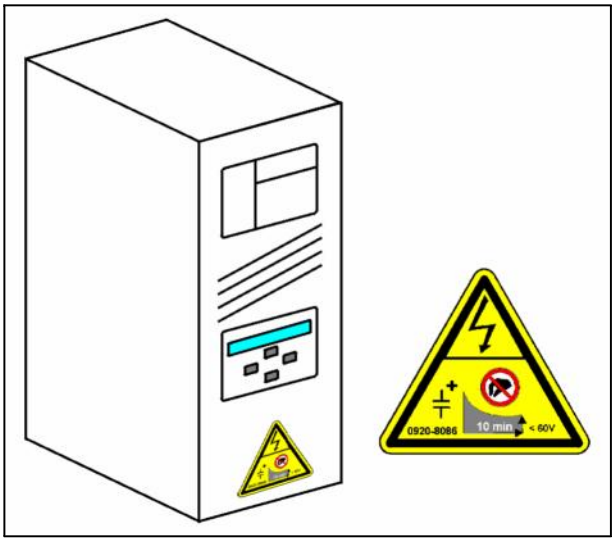
The purpose of the warning signs attached to the machine is to draw attention to the hazards at this point.

3.3.1.7 Hazardous voltage



Hazardous voltage is present behind doors and covers labelled with this sign.

3.3.1.8 Frequency converter



The frequency converter carries dangerous electric voltage.

DANGER
After the appliance has been disconnected from the mains, the intermediate circuit remains live at first (intermediate circuit capacitor).
Non-compliance may result in severe or even fatal injuries.
Trained, competent personnel only may carry out work on the control cabinet and on electrical installations.
It may take up to 10 minutes for the unit to discharge. Once the equipment is disconnected from the power supply, it is imperative you wait 10 minutes for it to discharge completely.
Before commencing work, check the tension voltage of the intermediate circuit. The voltage must have dropped to below 60 Volt.

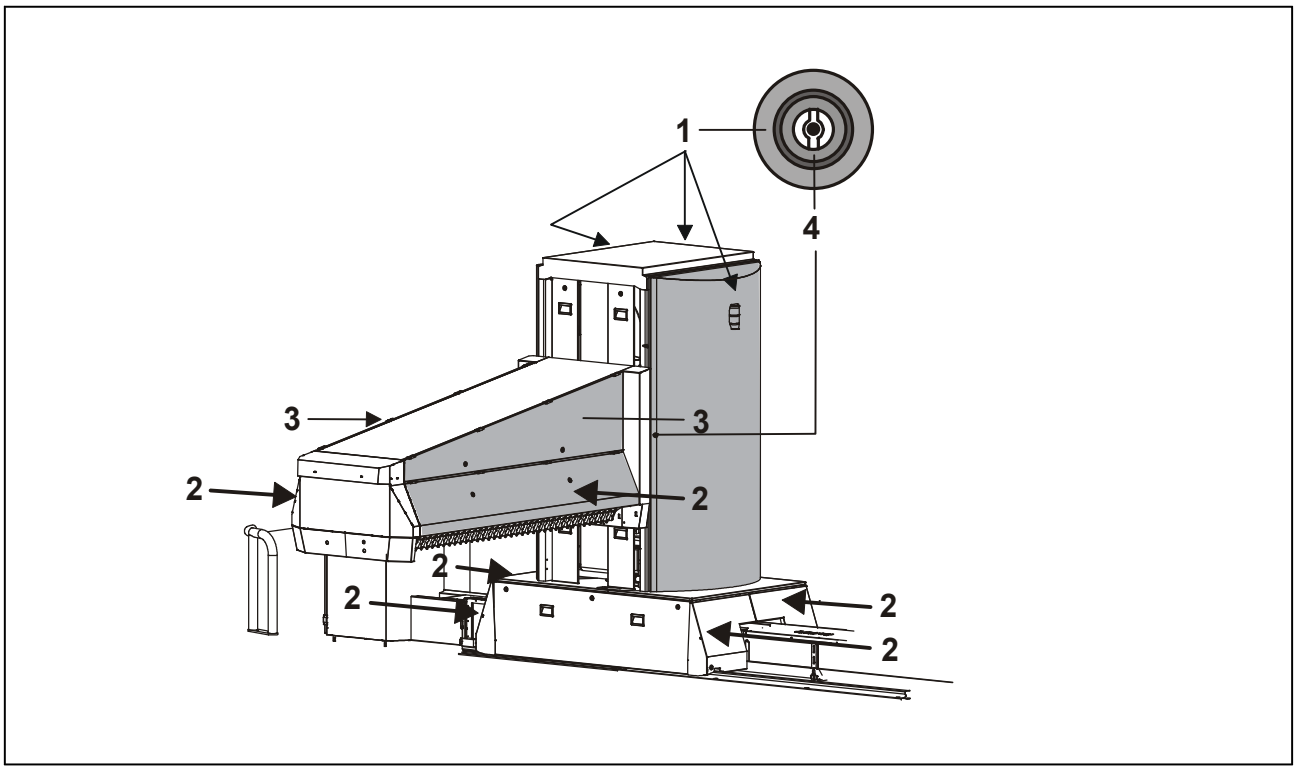
The purpose of the warning signs attached to the machine is to draw attention to the hazards at this point.

3.4 Safety devices

3.4.1 Secured doors and covers

Note: The limit or safety switches may neither be removed nor by-passed.

The three doors (1) are secured with safety switches and each one is identified by a red ring (4) attached to the lock. All of the drives switch off immediately if a door or cover is opened or if a collision flap (2) is activated. Caution: The fans and the take-off roller continue to run for a few seconds after the drives have been switched off.



1 Doors secured with safety switches

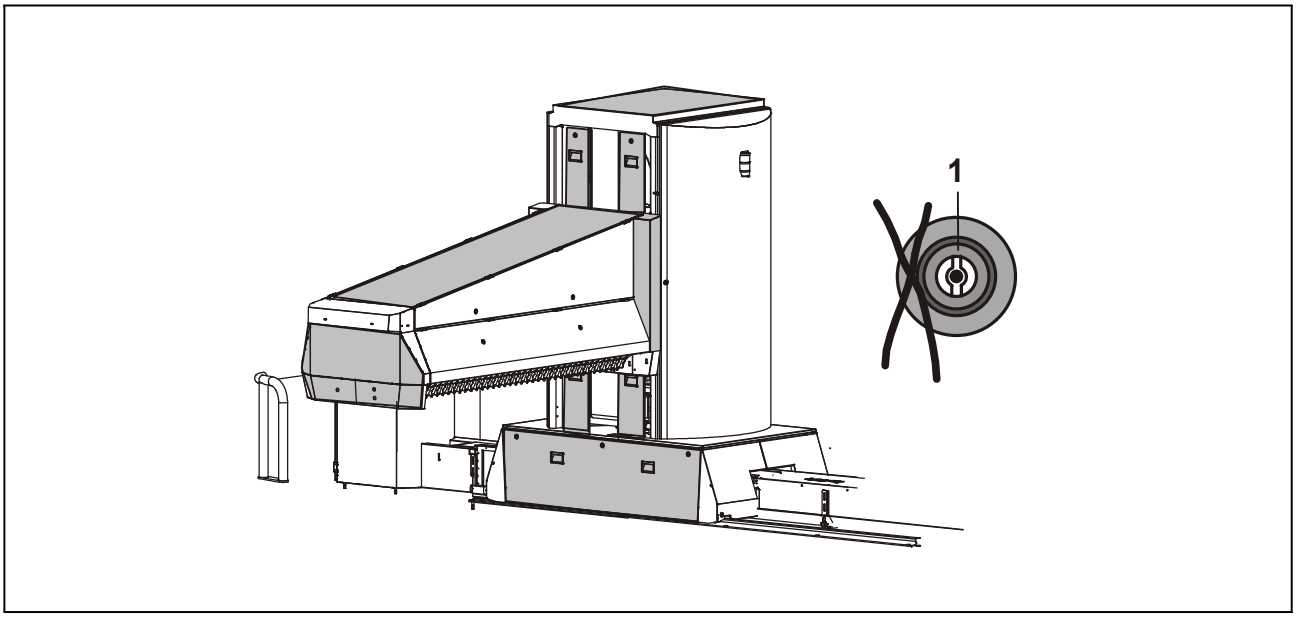
2 Collision flaps

3 Covers secured with limit switches

3.4.2 Bolted or non-fused covers

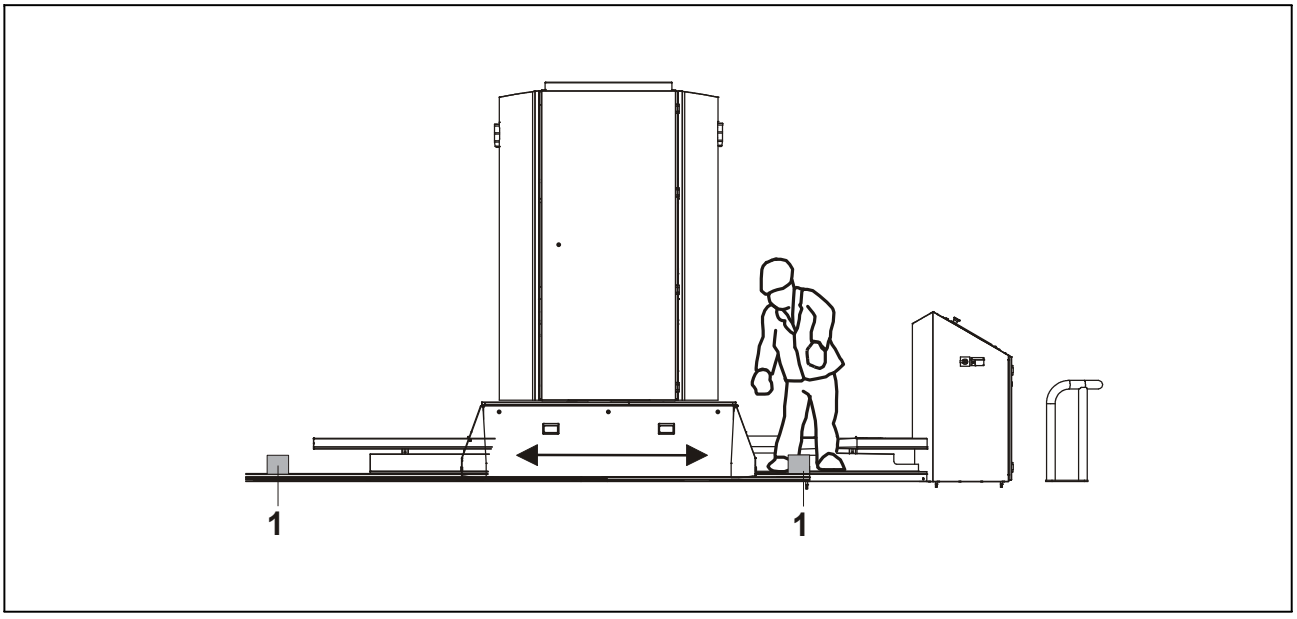
WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

Tightly bolted covers or covers with twistlocks and no red ring (1) may not be removed until the main switch has been turned off and secured and the machine has come to a complete stop.

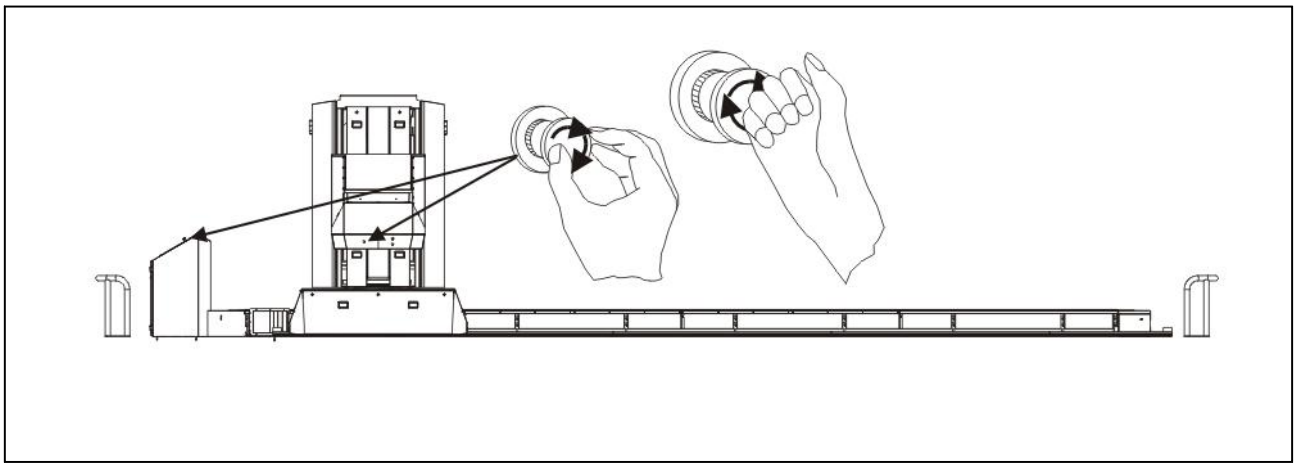


3.4.3 Danger of getting trapped

Do not stand in between the collision buffers (1) when the machinery is in operation.

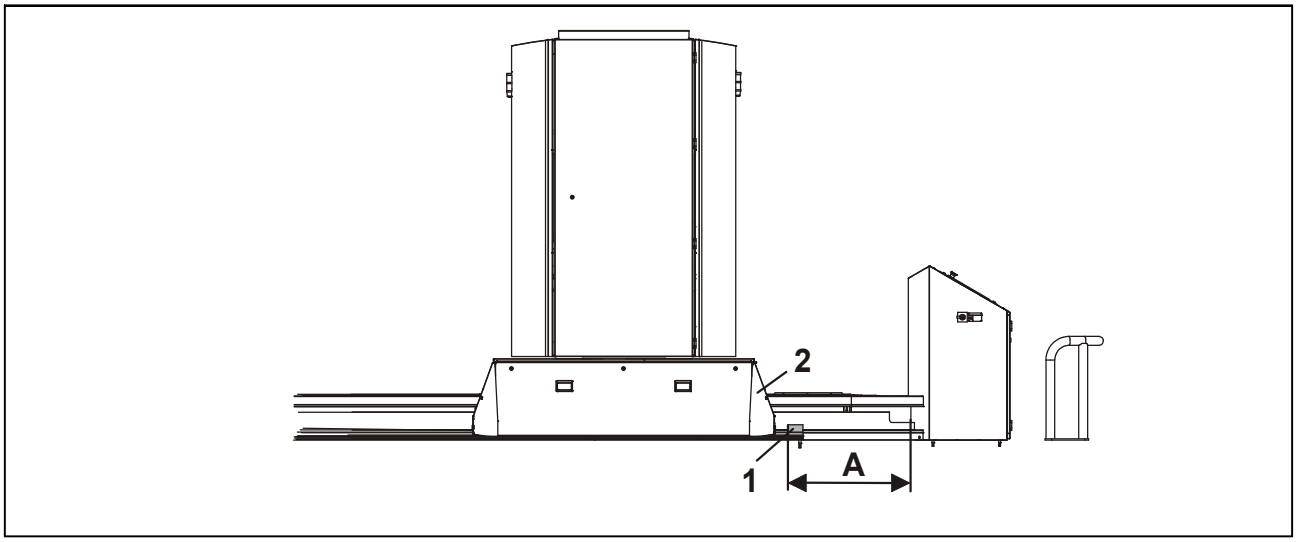


3.4.4 Overview of the EMERGENCY STOP switches



3.4.5 Collision buffers for drive frame

The collision buffers (1) have been mounted at a distance "A" of 0.88 m from the operator panel. This safety distance eliminates the possibility of any trapping positions. If the machine runs beyond the zero position for whatever reason, it will be stopped via the collision flap (2). Do not remove these collision buffers under any circumstances.

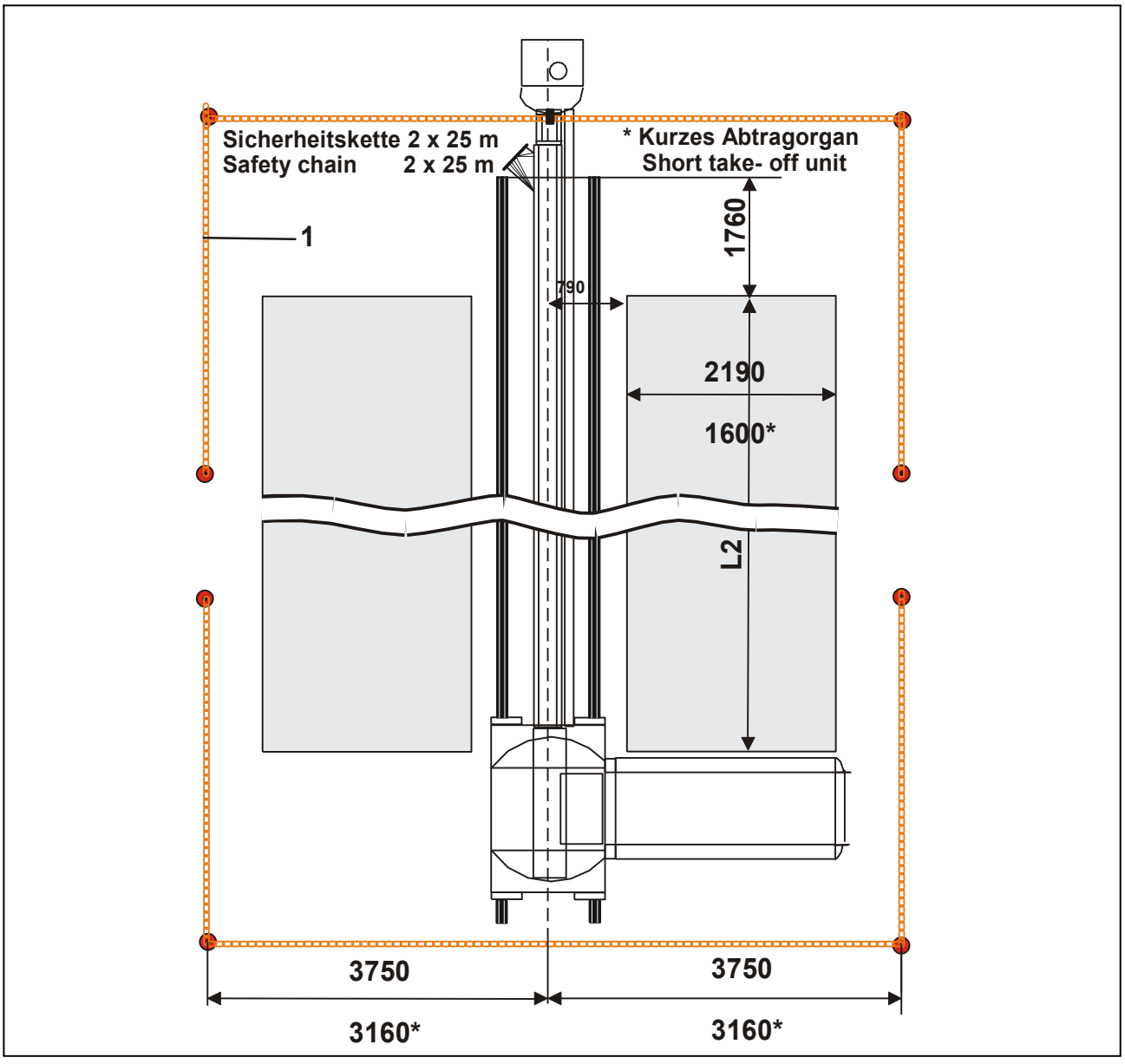


1 Collision buffers

2 Collision flaps

3.4.6 Safety chain in operation with set up bales

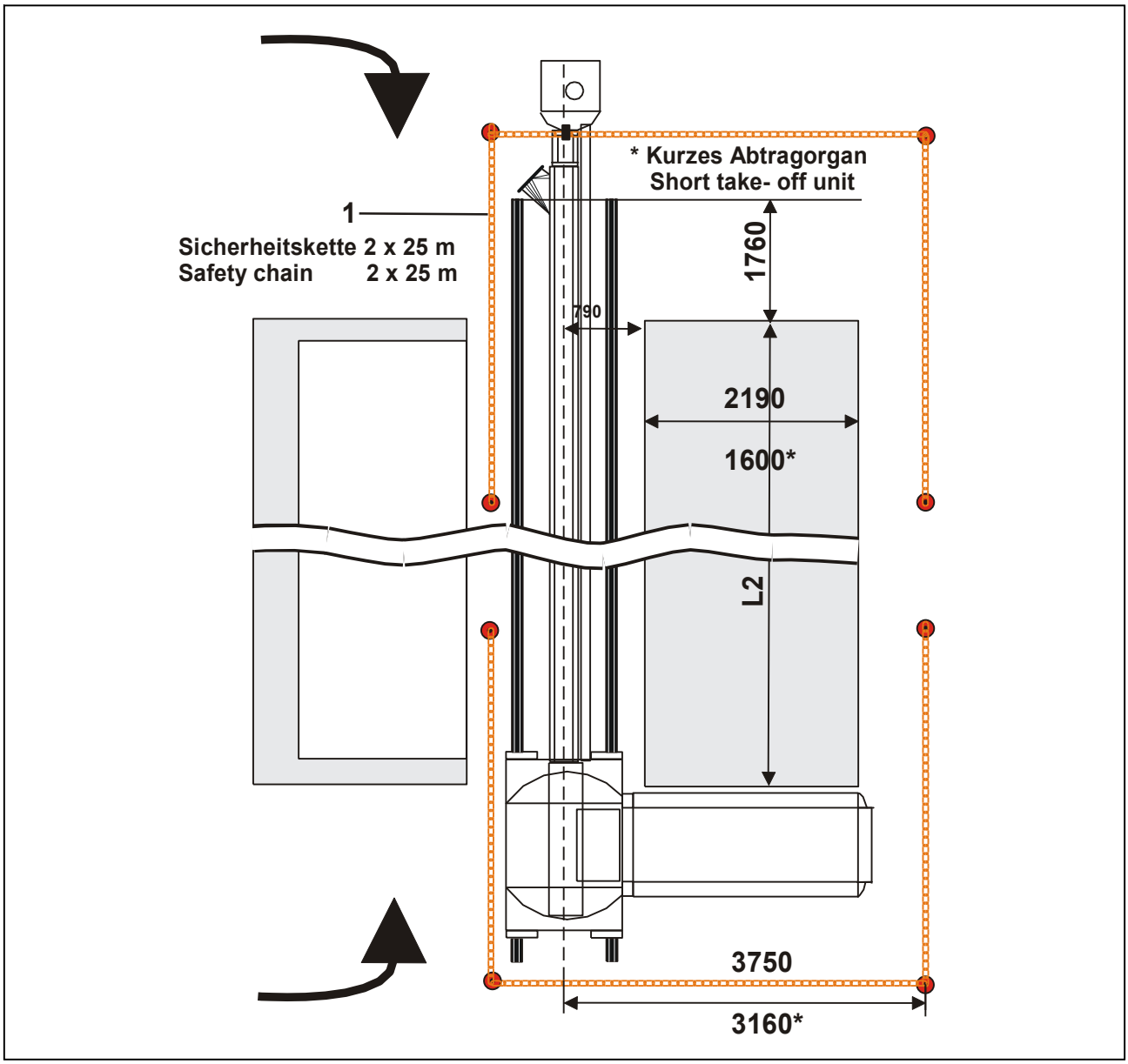
The take-off unit will move beyond the bales at both reversing points. These safety chains must be installed to ensure that nobody enters this zone unintentionally. If the entire laydown length for the bales is not utilised, the chain will have to be adjusted accordingly. The chain can then hang over the channel and the rails.



1 Safety chain

3.4.7 Safety chain while the bales are set up

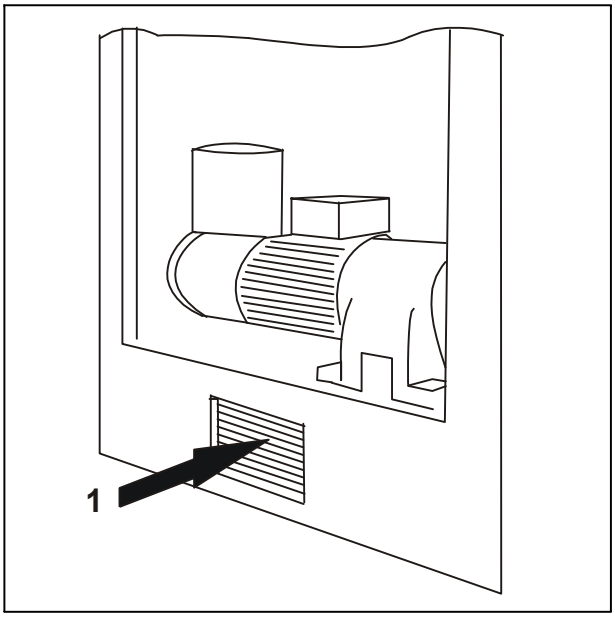
To set up the bales, the bases and the chain have to be put towards the inside (as depicted in the illustration). The bales can be set up from the rear or from the operator panel. Once the bale laydown has been set up, the bases and the chains have to be set up again for operation.



1 Safety chain

3.4.8 Counterweights

The counterweights (1) may under no circumstances be removed.



3.5 Responsibilities and qualifications

Responsibilities

By clear rules defining who is responsible for what, the customer creates optimum requirements for ensuring safety in the plant.

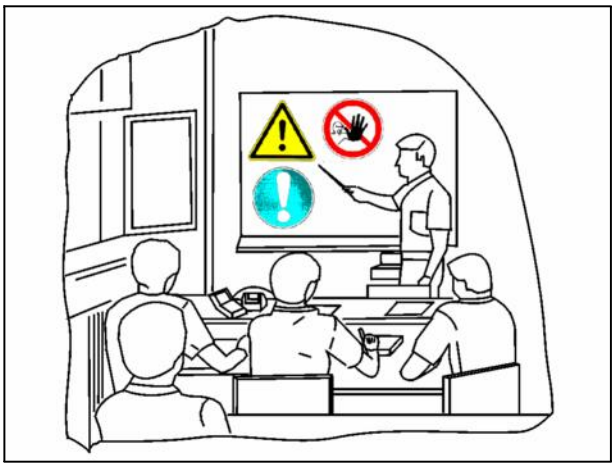
The areas of responsibility for each authorised person must be officially laid down. This applies in particular to jobs involving setting and servicing mechanical, electric and pneumatic devices.

This guarantees that unauthorised persons do not have access to the machines.

Visitors may enter machine rooms only if accompanied by an authorised person..

It must be made clear to visitors that machines are a potential source of danger when running.

Training



Inadequately trained staff may cause accidents. This may also result in injury to others.

Operating and maintenance staff must be given theoretical and practical training.

This is the general purpose of this part of the manual. The corresponding operating instructions in the manual refer to specific dangers and must always be observed.

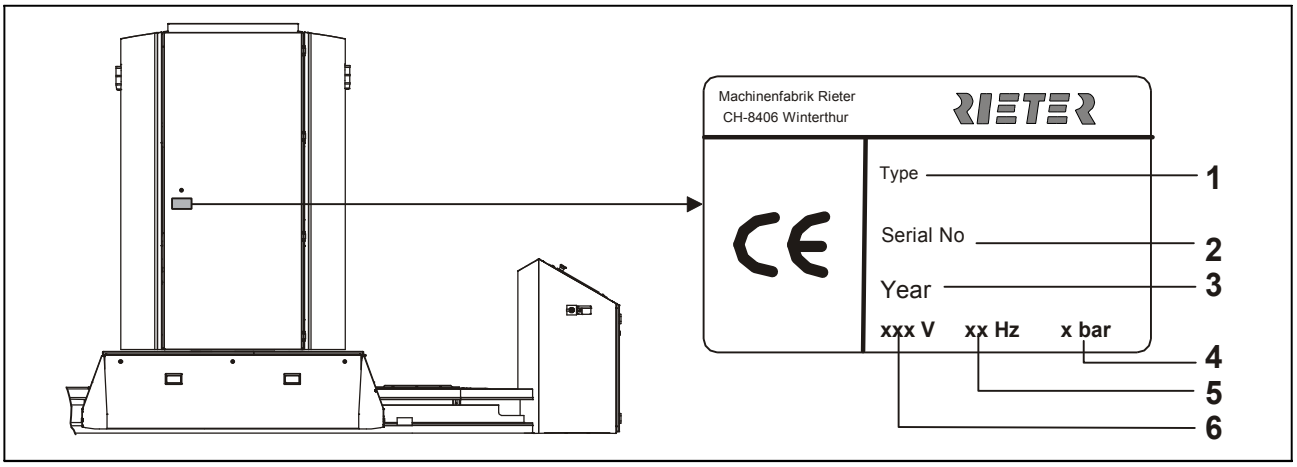
Machines that are attended by well-trained staff produce a higher yield, better quality, fewer malfunctions, higher output, fewer injuries.

4 Machine identification

Manufacturer
Maschinenfabrik Rieter AG
Klosterstrasse 20
CH-8406 Winterthur

Tel. no.: +41 52 208 71 71
Fax: +41 52 208 83 20

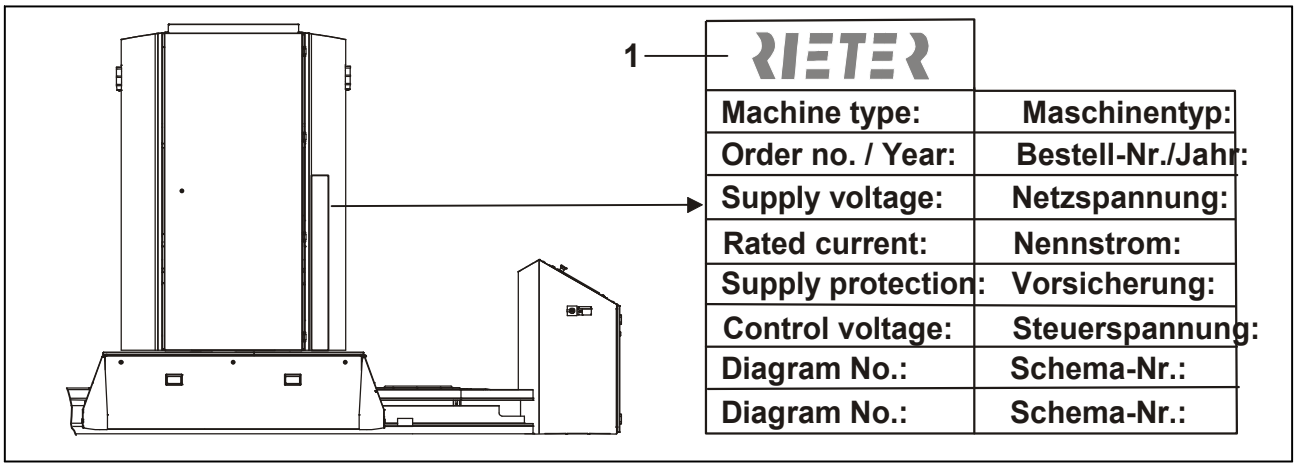
4.1 Identification plate



01	*Type*	*Type of machine*	*05*	*Hz*	*Frequency of electric power supply*
02	*Serial no.*	*Serial number*			
03	*Year*	*Year of construction*	*06*	*V*	*Voltage of electric power supply*
04	*bar*	*Compressed air network pressure*			

The CE nameplate is attached to the rear door of the rotating tower.

4.2 Electrical ratings plate

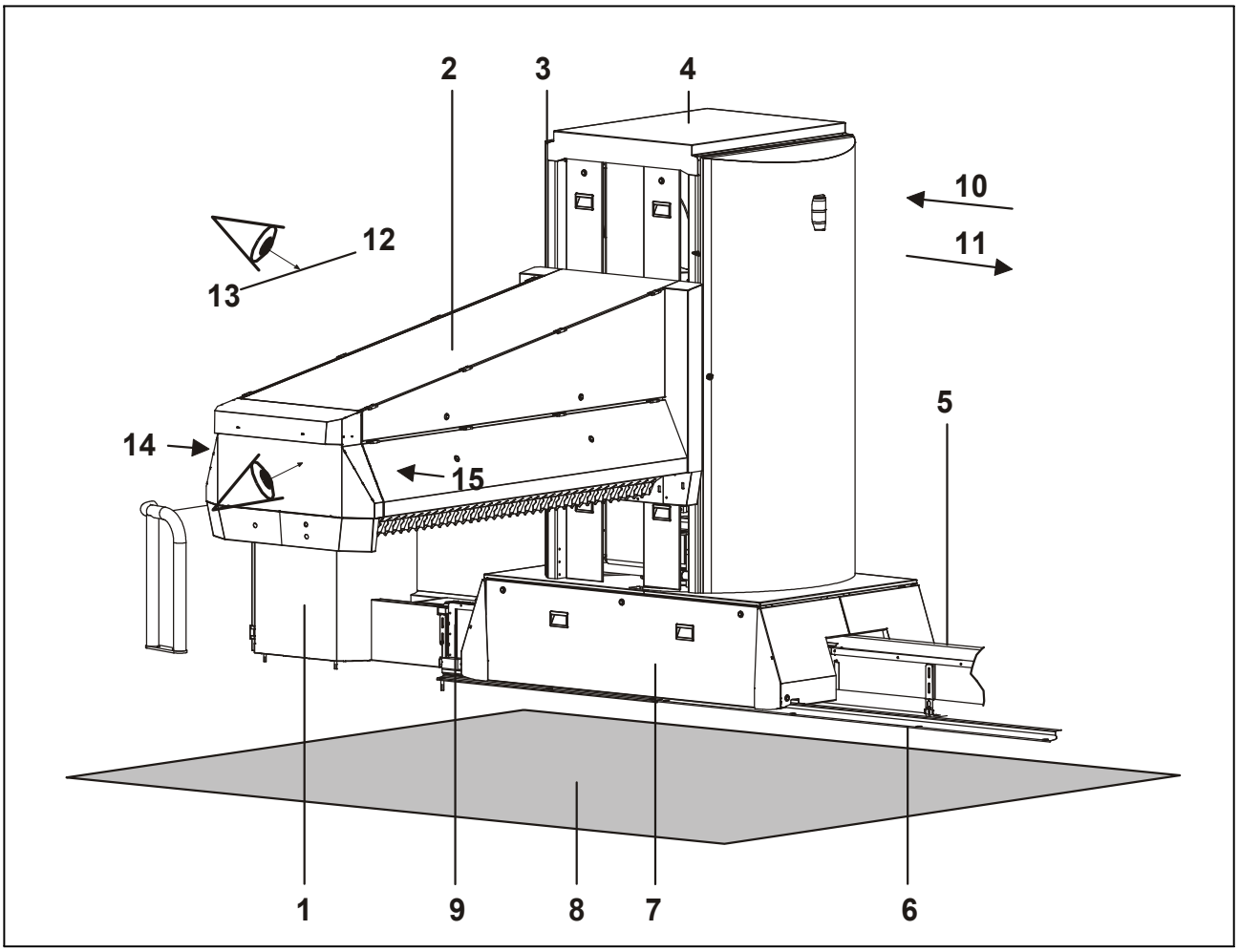


1 Electrical ratings plate — *The electric circuit diagram is supplied separately and in accordance with the machine design.*

The electrical ratings plate is attached to the inside of the electrical control cabinet.

5 Machine description

5.1 UNIfloc



1 Operator panel
2 Take-off unit
3 Electrical control cabinet
4 Rotating tower
5 Tuft chute
6 Rail
7 Drive frame
8 Bale lay-down area
9 Material delivery area
10 Backwards travel direction
11 Forward direction of motion
12 Left side of machine
13 Right-hand side of machine
14 Take-off unit, left-hand side
15 Take-off unit, right-hand side

6 Specifications

6.1 Performance characteristics

Raw materials

Raw materials	This machine is built exclusively for processing raw textile materials. No other types of materials may be processed by the UNIfloc.
Cotton	From all sources
Artificial fibres	max. 65.0 mm
Recycling	From all sources
Comber waste	All

Rate of cotton production in kg/h

	1.7 m				2.3 m			
A	S1	S2	S3	S4	S1	S2	S3	S4
10.0	----	----	----	----	1150	----	----	----
12.5	810	----	----	----	1250	----	----	----
15.0	840	----	----	----	1275	----	----	----
17.5	860	680	----	----	1300	1020	----	----
20.0	880	700	530	----	1320	1060	700	----
22.5	900	730	570	410	1340	1090	840	680
25.0	920	760	610	450	1360	1130	900	670
27.5	935	635	650	490	1380	1170	900	720
30.0	950	700	680	520	1380	1200	1010	770
32.5	950	820	680	520	1380	1200	1010	770
35.0	950	820	680	520	1380	1200	1010	770
37.5	950	820	680	520	1380	1200	1010	770
40.0	950	820	680	520	1380	1200	1010	770
42.5	950	820	680	520	1380	1200	1010	770
45.0	950	820	680	520	1380	1200	1010	770
47.5	950	820	680	520	1380	1200	1010	770
50.0	950	820	680	520	1380	1200	1010	770

A *Channel length in m*

1.7 m *Short take-off unit*

2.3 m *Long take-off unit*

S1 *1 assortment*

S2 *2 assortments*

S3 *3 assortments*

S4 *4 assortments*

Minimum number of bales	18

Rate of manmade fibre production in kg/h

	1.7 m				2.3 m			
A	S1	S2	S3	S4	S1	S2	S3	S4
10.0	580	----	----	----	830	----	----	----
12.5	610		----	----	870	----	----	----
15.0	630	490	----	----	910	700	----	----
17.5	650	510	370	----	930	730	400	----
20.0	660	530	400	----	950	760	530	410
22.5	670	550	420	280	960	790	570	440
25.0	920	560	450	310	980	810	610	480
27.5	935	580	480	330	990	840	650	510
30.0	680	600	500	360	1000	860	680	550
32.5	690	600	500	390	1000	860	720	550
35.0	700	600	500	390	1000	860	720	550
37.5	700	600	500	390	1000	860	720	550
40.0	700	600	500	390	1000	860	720	550
42.5	700	600	500	390	1000	860	720	550
45.0	700	600	500	390	1000	860	720	550
47.5	700	600	500	390	1000	860	720	550
50.0	700	600	500	390	1000	860	720	550

A *Channel length in m*

1.7 m *Short take-off unit*

2.3 m *Long take-off unit*

S1 *1 assortment*

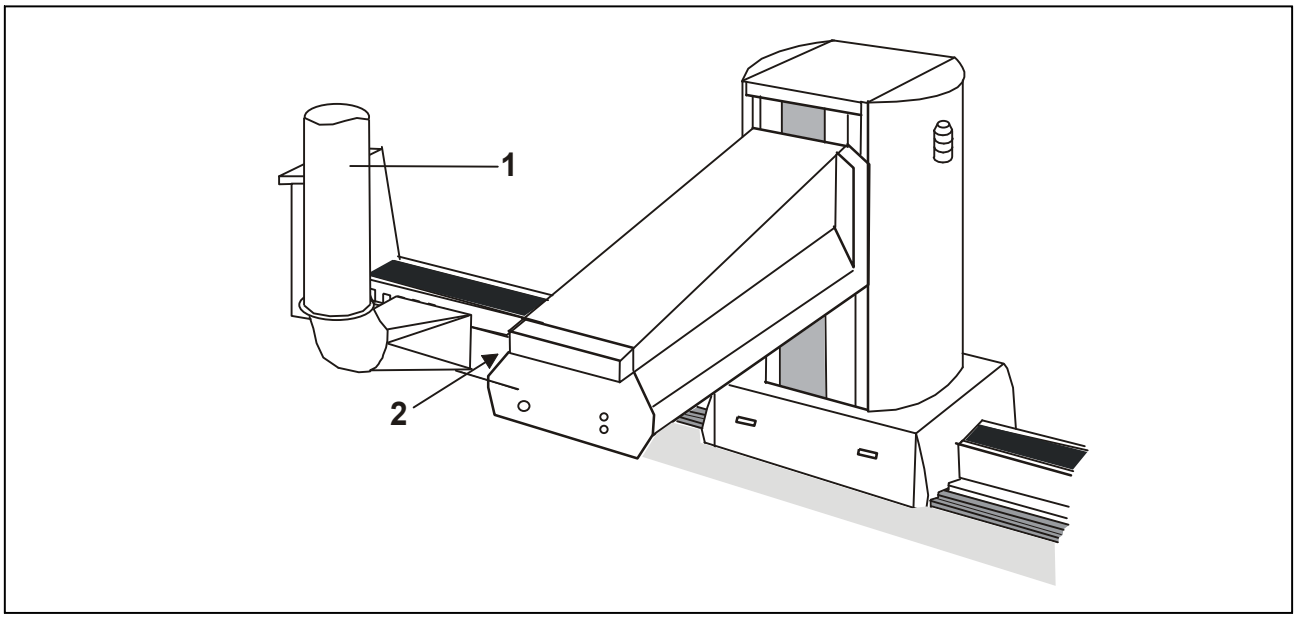
S2 *2 assortments*

S3 *3 assortments*

S4 *4 assortments*

Minimum number of bales	12

Air volume and air pressure



Measurement point (1). Take-off unit length: 1700 mm	0.85 - 1.20 m³/s
Measurement point (1) Take-off unit length : 2300 mm	1.00 - 1.40 m³/s
Required air volume for card production exceeding 1000 kg	min. 1.20 m³/s

Dynamic vacuum at the material delivery section (1)

Take-off unit length: 1700 mm	90 - 180 P dyn
Take-off unit length: 2300 mm	130 - 250 P dyn

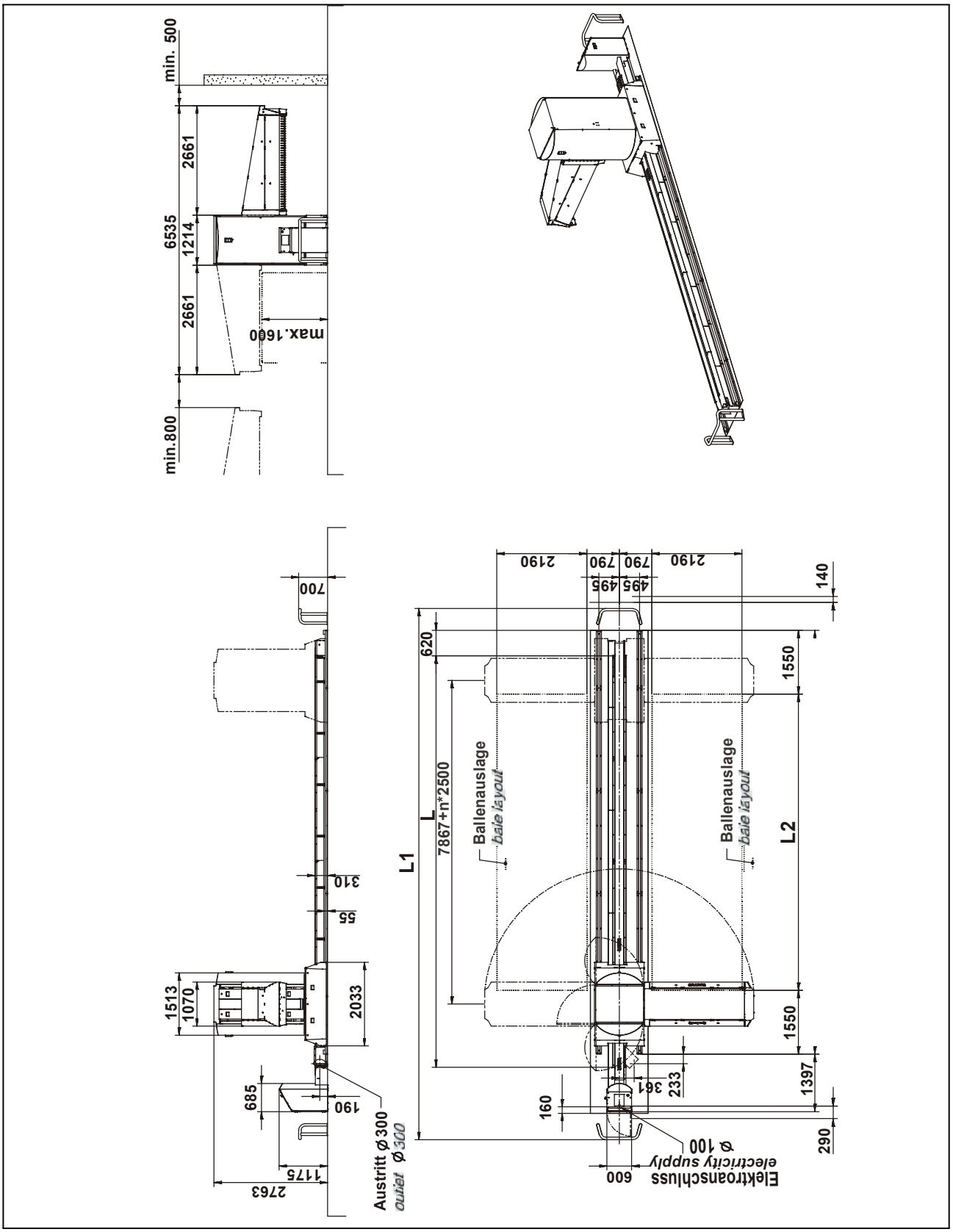
Static vacuum at the suction duct (2)

Static vacuum at the suction duct (2)	-200 - -400 Pa

- Maximum take-off width (Fixed):
  Type A, 11-1700: 1.6 m
  Type A 11-2300 = 2.2 m

6.2 Dimensions

6.2.1 Space requirements



Location number	Designation	Prerequisite	Dimension
L	Channel length	1 duct part: 1 x n	2.5 m
		Minimum duct length: 4 x n	10.0 m
		Max. duct length: 20 x n	50.0 m
L1	Total length with protective railing		L + 2.9 m
L2	Determination of the material arrangement	For minimum duct length (4 x n)	7.2 m
		For maximum duct length (20 x n)	47.2 m

6.3 Weights

Weights of the individual subassemblies

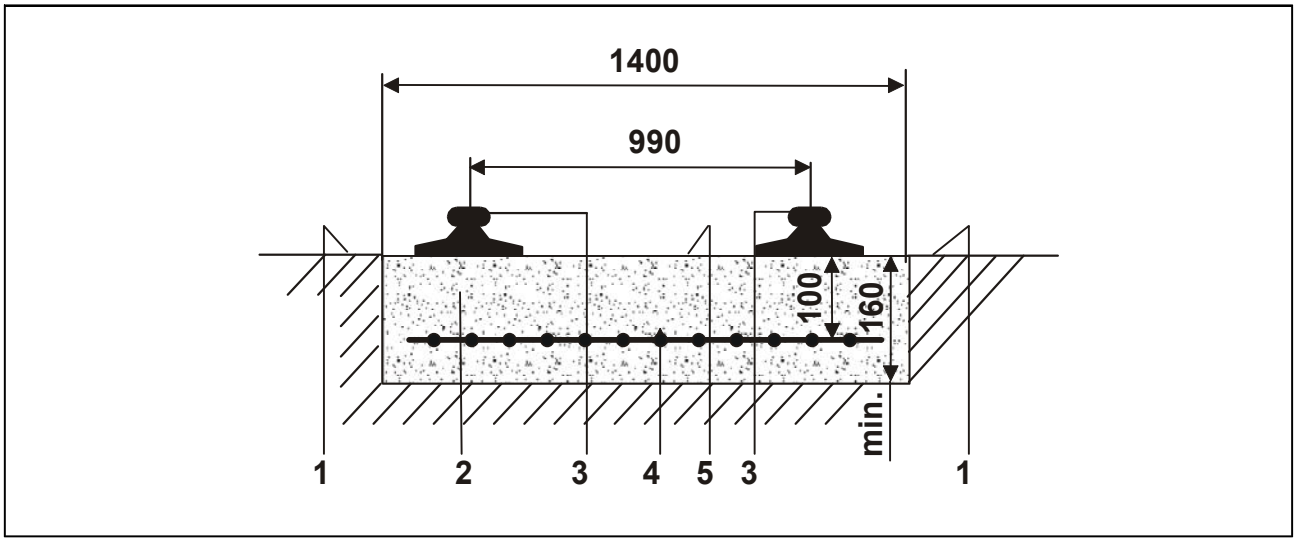
Designation	Prerequisite	Weights
Operator panel		90 kg
Complete take-off unit	Width: 1.7 m	500 kg
	Width: 2.3 m	590 kg
Rotating tower		1270 kg
Drive frame		560 kg
Take-off roller, manmade fibre / cotton	Width: 1.7 m	58 / 68 kg
	Width: 2.3 m	75 / 85 kg

Designation	Prerequisite	Weights
Protective railing		30 kg

Designation	Prerequisite	Weights
Total machine weight (For the A11-2300, the total machine weight is increased by 90 kg in each case.)	Machine length: 11.7 m	3230 kg
	Machine length: 14.2 m	3430 kg
	Machine length: 16.7 m	3630 kg

Designation	Prerequisite	Weights
Total machine weight (For the A11-2300, the total machine weight is increased by 90 kg in each case.)	Machine length: 19.2 m	3830 kg
	Machine length: 21.7 m	4030 kg
	Machine length: 24.2 m	4230 kg
	Machine length: 26.7 m	4430 kg
	Machine length: 29.2 m	4630 kg
	Machine length: 31.7 m	4830 kg
	Machine length: 34.2 m	5030 kg
	Machine length: 36.7 m	5230 kg
	Machine length: 39.2 m	5430 kg
	Machine length: 41.7 m	5430 kg
	Machine length: 44.2 m	5630 kg
	Machine length: 46.7 m	5830 kg
	Machine length: 49.2 m	6230 kg
	Machine length: 51.7 m	6430 kg

6.4 Foundation specifications



1 Flooring:
☞ *Surface: flooring, Page 1/38*

2 Concrete:
☞ *Cube strength of concrete, Page 1/38*

3 Rails: on left and right

4 Wire guard:
☞ *Wire guard, Page 1/38*

5 Concrete surface:
☞ *Evenness of level , Page 1/38*

Surface: flooring

Note: To prevent the bale layers being displaced at the end of a feed.

In the lay-down area	A slightly rough surface is beneficial.

Cube strength of concrete

Portland concrete or equivalent	35 N/mm²
Cement content	300 kg/m³

Wire guard

Note: To reinforce the flooring

Wire guard along the length of the entire machinery	Width 1400 mm
Wire guard diameter	4 mm
Wire guard	Mesh width 100....150 mm

Evenness of level

In longitudinal direction	+/- 10 mm

6.5 Machinery requirements

6.5.1 Electrical data

Electrical data

Mains connection	380 / 400 VAC
Frequency	50 / 60 Hz
Connected load (1700 mm take-off unit)	11.5 kW
Electrical data	13.4 kVA
Fuse protection (1700 mm take-off unit)	25.0 A
Connected load (2300 mm take-off unit)	14.5 kW
Electrical data	18.0 kVA
Fuse protection (2300 mm take-off unit)	32.0 A

6.6 Emissions

6.6.1 Declaration of noise emission in accordance with ISO 4871

Declared A-weighted sound power level (reference power: 1 pW) LWad

Operating status without material: Take-off roller, 1600 min-¹	93.5 + 3 dB

Measurement standard: ISO 9902 measurement standard; measuring distance: 1 m; levels expressed in the form: Lm + K Lm; typical mean value for K is 3 dB; safety margin; measurement date: 29/10/2008

Declared sound power level of emission at work station (reference pressure: 20 µPa) LpAd

Operating status without material: Take-off roller, 1600 min-¹	74 + 3 dB

Measurement standard: ISO 9902 measurement standard; measuring distance: 1 m; levels expressed in the form: Lm + K Lm; typical mean value for K is 3 dB; safety margin; measurement date: 29/10/2008

7 Putting into operation

7.1 Commissioning

Machines manufactured by "Rieter Textile Systems" must always be assembled and commissioned by Rieter's own staff.
Should the assembly of new or existing plant be carried out by a third party, however, RIETER MACHINE WORKS LTD. declines all liability.

7.2 Decommissioning

Put the machine into a safe state.
disconnect the power supply.

Protect the machine from misuse.
Secure the machine in such a way that when it is idle there is no risk of injury to any person.

The machine-specific regulations with regard to decommissioning must be observed.

The machine must be suitably protected against soiling and corrosion.

The regulations and operating procedures specific to the machine are listed in the Chapter "Taking out of service" in Part 3. These regulations, and particularly the safety regulations, must be adhered to most exactly.

7.3 Putting back into operation

All elements affecting safety must be tested to ensure that they are in perfect operating condition.

The machine-specific regulations with regard to re-commissioning must be observed.

The regulations and operating procedures specific to the machine are listed in the Chapter "Putting back into service" in Part 3. These regulations, and particularly the safety regulations, must be adhered to most exactly.

7.4 Disposal

Disposal

In the case of the machine being conclusively removed from operation, the legal regulations of the relevant country should be observed.

This applies in particular to:

Re-usability

Recycling

Waste disposal

It must be ensured that the fuel remaining in the machine is disposed of in accordance with regulations.

Fuel such as oils, grease and batteries.

The regulations and operating procedures specific to the machine are listed in the Chapter "Disposal" in Part 3. These regulations, and particularly the safety regulations, must be adhered to most exactly.

8 Instruction of personnel

Safety advice for anybody in the vicinity of the machine.

— Safety devices
- ☞ General notes on safety, Page 1/9
- ☞ Overview of hazard zones, Page 1/14
- ☞ Counterweights, Page 1/25
- ☞ Overview of the EMERGENCY STOP switches, Page 1/22
- ☞ Collision buffers for drive frame, Page 1/22
- ☞ Overview of the EMERGENCY STOP switches, Page 1/22
- ☞ Secured doors and covers, Page 1/20
- ☞ Bolted or non-fused covers, Page 1/21
- ☞ Danger of getting trapped, Page 1/21

Operation for anybody involved with the machine.

— Operation functions
- ☞ Switch on the main switch., Page 2/27
- ☞ Switch off the main switch., Page 2/27
- ☞ Turn off main switch and secure with a padlock, Page 2/28
- ☞ Engaging the emergency stop, Page 2/28
- ☞ Resetting the EMERGENCY STOP button, Page 2/29
- ☞ Clear the clog in the take-off unit, Page 2/31
- ☞ Release the anti-drop device, Page 2/32
- ☞ Start the machine, Page 2/29
- ☞ Stop machine, Page 2/30
- ☞ Entering password, Page 2/35
- ☞ Changing passwords, Page 2/36
- ☞ Cancelling the password authorisation, Page 2/37

Machine setup

— Setting up, changing over, adjusting
- ☞ UNIfloc, Page 3/3
- ☞ Adjusting machine to take in new raw material, Page 3/5
- ☞ Production problems, Page 3/6
- ☞ Assortment and bale group information, Page 3/5
- ☞ Overview of limit switches, Page 3/9
- ☞ Overview of the proximity switches, Page 3/10

Description of the subassemblies

— Processes, subassemblies
- ☞ Setting up the run-in and run-out programs, Page 6/18
- ☞ Adjusting the collision safeguards on the take-off unit, Page 6/22
- ☞ Setting the stop motion sensors to assure personal safety, Page 6/26
- ☞ Adjusting the swiveling flap in the take-off unit, Page 6/27
- ☞ Setting proximity switches for the positioning of the rotating tower, Page 6/48

Description of the fault correction procedures

— Always consult Part 5 of the operating manual in the event of faults. Explain that some faults can be detected by the machine and others cannot.

Description of the maintenance work

— Explain the maintenance and lubrication schedules of Part 4 to maintenance personnel and mechanics.

Part 2

Operation

		Part / Page
1	Controls and display elements	2 / 1
2	Operation	2 / 27
3	Display screens Operator panel	2 / 45

No. of pages 74

Contents

		Part / Page
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1.1	**Overview of controls and display elements**	**2 / 1**
1.1.1	**UNIcontrol**	**2 / 1**
1.1.2	**Overview of the display and operating elements at the machine operating station**	**2 / 2**
1.1.2.1	Keyboard and machine keys	2 / 3
1.1.2.2	LED status display	2 / 4
1.1.2.3	Operating keys	2 / 5
1.1.2.4	Program keys	2 / 6
1.1.3	**Overview of display elements for the control system**	**2 / 7**
1.1.4	**Frequency inverter V7, operator interface panel**	**2 / 8**
1.1.5	**LED displays of the stop motion sensors**	**2 / 8**
1.2	**Operating elements**	**2 / 9**
1.2.1	**UNIcontrol**	**2 / 9**
1.2.1.1	UNIcontrol (1)	2 / 9
1.2.1.2	UNIcommand (2)	2 / 9
1.2.2	**Overview of the display and operating elements at the machine operating station**	**2 / 10**
1.2.2.1	EMERGENCY SHUT-DOWN button	2 / 10
1.2.2.2	Push-buttons at the take-off unit	2 / 10
1.2.2.3	Main switch	2 / 11
1.2.3	**Keyboard and machine keys**	**2 / 12**
1.2.3.1	STOP button on the operator interface panel	2 / 12
1.2.3.2	BALE RELEASE button	2 / 12
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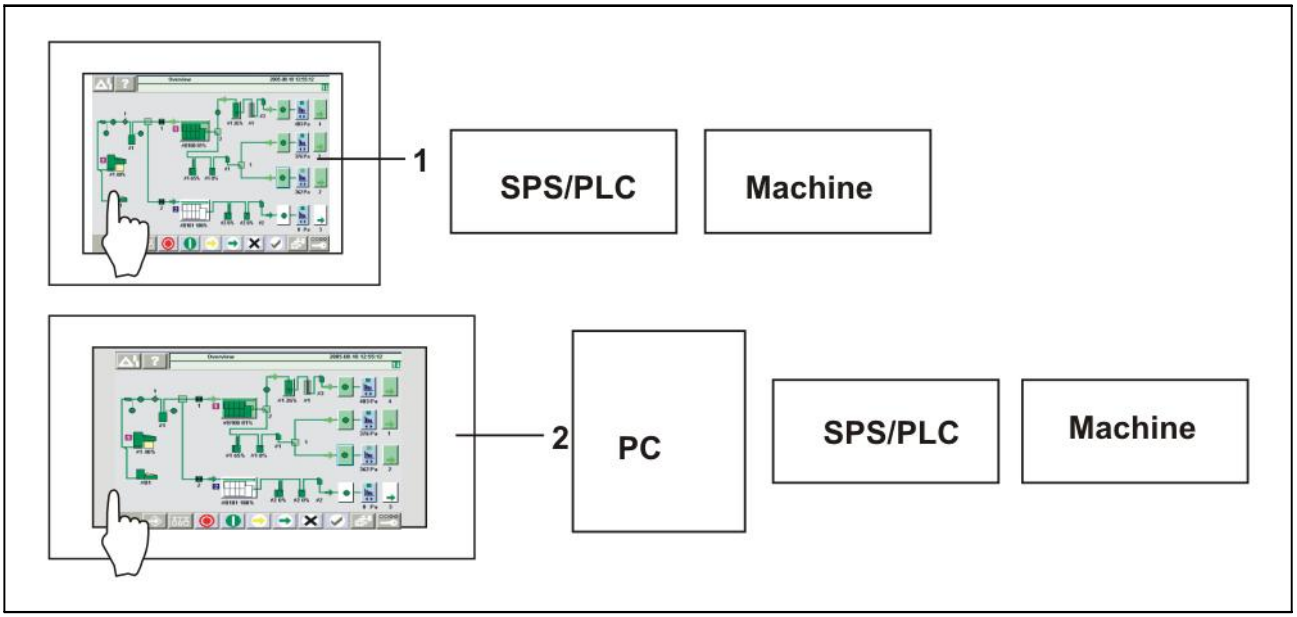
1 Controls and display elements

1.1 Overview of controls and display elements

1.1.1 UNIcontrol

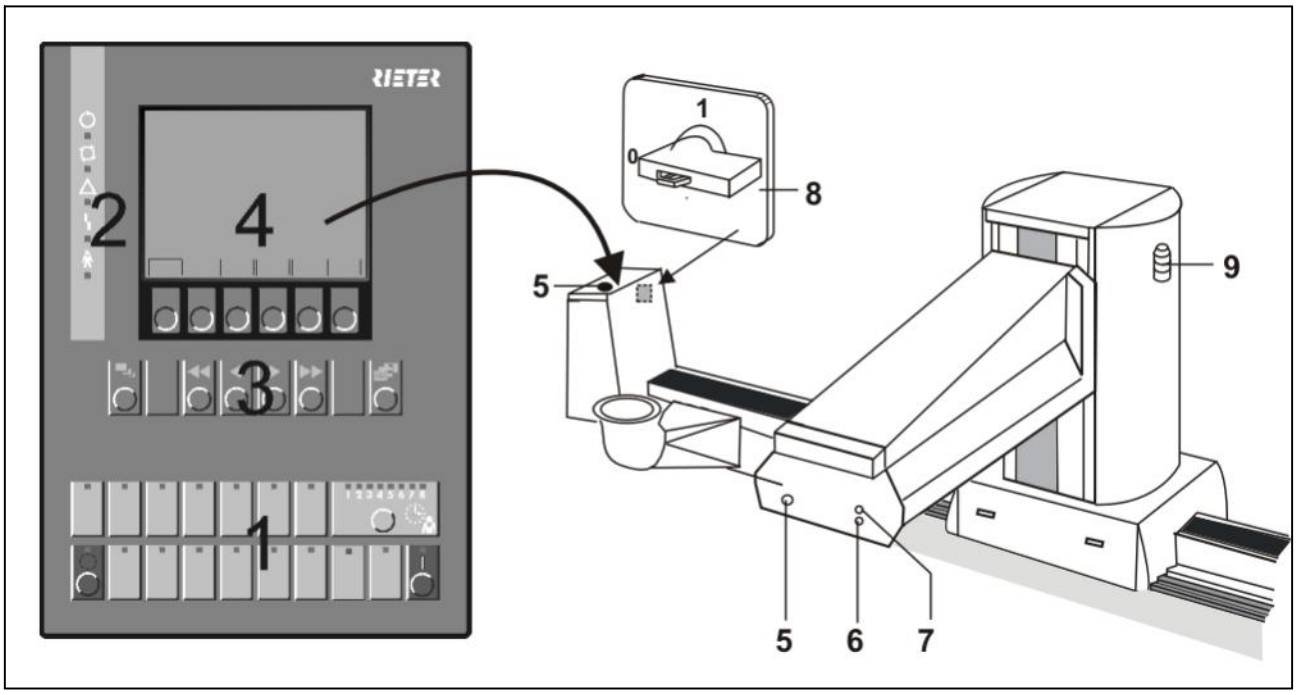


1 ☞ *UNIcontrol (1), Page 2/9*

2 ☞ *UNIcommand (2), Page 2/9*

The UNIcontrol and UNIcommand controllers are described in a separate manual.

1.1.2 Overview of the display and operating elements at the machine operating station



1 *Keyboard and machine keys*

2 *LED status display*

3 *Operating keys*

4 *Program keys*

5 ☞ *EMERGENCY SHUT-DOWN button, Page 2/10*

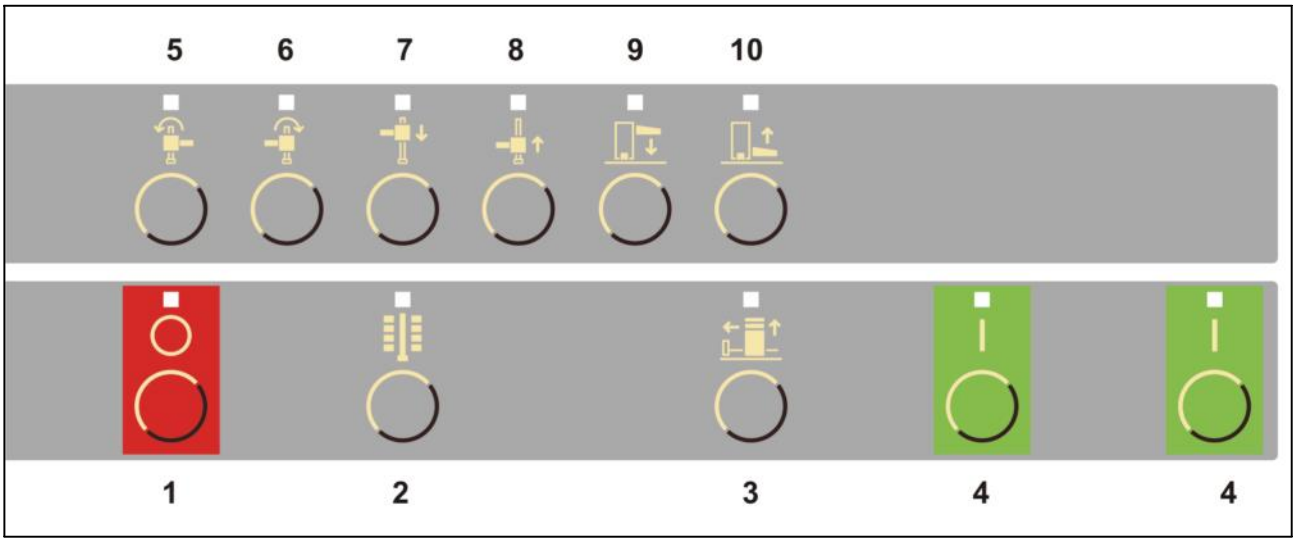
6/7 ☞ *Push-buttons at the take-off unit, Page 2/10*

8 ☞ *Main switch, Page 2/11*

9 ☞ *Signal lamp, Page 2/21*

The operator panel and the operational controls are the interface between man and machine controls.
The surface of the operator panel consists of 4 segments.

1.1.2.1 Keyboard and machine keys



1
☞ *STOP button on the operator interface panel, Page 2/12*

2
☞ *BALE RELEASE button, Page 2/12*

3
☞ *P0 button: UNIfloc moves to its initial position "P0", Page 2/12*

4
☞ *START buttons, Page 2/12*

5
☞ *Tower rotation key: rotating tower turns to the left, Page 2/13*

6
☞ *Tower rotation key: rotating tower turns to the right, Page 2/13*

7
☞ *Drive button: The tower moves to the operator panel., Page 2/13*

8
☞ *Motion key: the tower moves away from the operating unit, Page 2/13*

9
☞ *Take-off unit button: the take-off unit moves downwards, Page 2/14*

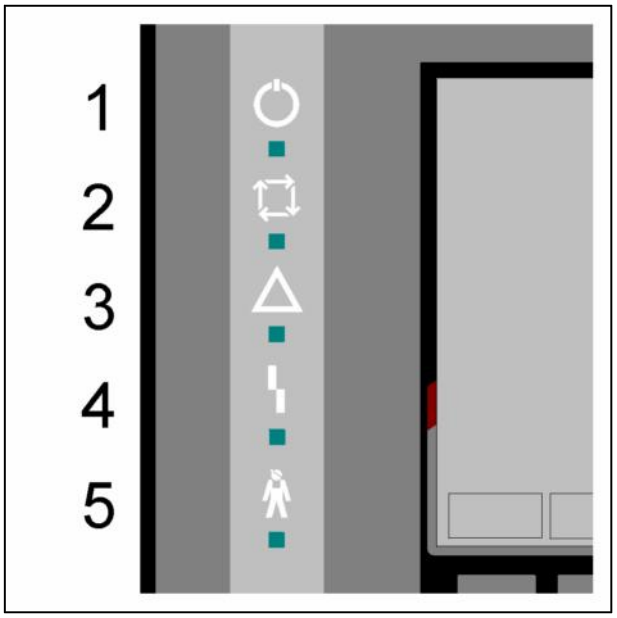
10
☞ *Take-off unit button: the take-off unit moves upwards, Page 2/14*

The machine keys enable you to operate the basic functions of the machine.

If a machine key triggers a function, the corresponding LED starts and continues flashing for as long as it takes to execute the function.

Otherwise, the LED remains on for as long as the key is being pushed, but at least for 2 seconds.

1.1.2.2 LED status display



Five LEDs display the machine status.

1 ☞ *LED electric power supply, Page 2/22*

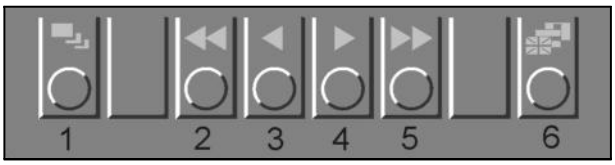
2 ☞ *LED automatic mode (production mode), Page 2/22*

3 ☞ *LED "Alert", Page 2/22*

4 ☞ *LED "Malfunction", Page 2/22*

5 ☞ *LED call "Service personnel", Page 2/23*

1.1.2.3 Operating keys



The operating keys facilitate navigating from the overview to the menu to the data screens.
Press the key on the right to change the language on the display unit.

1 ☞ *BASIC display key, Page 2/15*

2 ☞ *MENU-key back, Page 2/15*

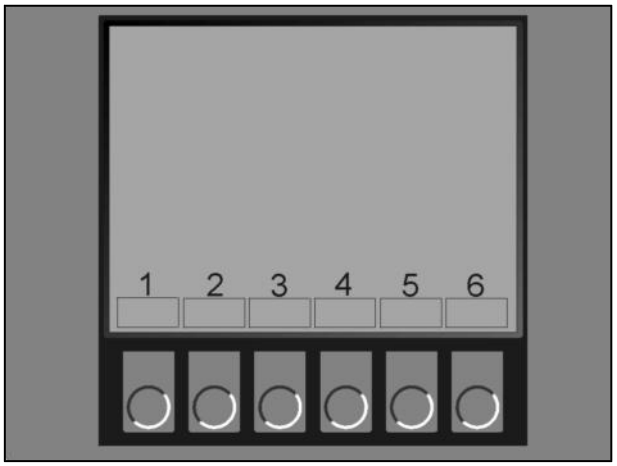
3 ☞ *DATA-DISPLAY-key-back, Page 2/15*

4 ☞ *"DATA-DISPLAY-key-forward, Page 2/15*

5 ☞ *MENU-key forwards , Page 2/15*

6 ☞ *LANGUAGE-key, Page 2/16*

1.1.2.4 Program keys



1	30.2	☞ *DIRECT key, forward, Page 2/16*
	^	☞ *POINTER button back, Page 2/16*
	✓	☞ *ENTER-key, Page 2/16*
2	40.1	☞ *DIRECT-key back, Page 2/16*
	v	☞ *POINTER button forward, Page 2/17*
	?	☞ *HELP-key, Page 2/17*
3	»	☞ *MENU overview key, Page 2/17*
	⌅	☞ *START OF LIST key, Page 2/17*
	-	☞ *MINUS-key, Page 2/17*
	-↵	☞ *MINUS-ENTER- key, Page 2/17*
4	⊶	☞ *PASSWORD-INSERT key, Page 2/18*
	⊶/	☞ *PASSWORD-CANCELING key, Page 2/18*
	⌄	☞ *END OF LIST key, Page 2/18*
	+	☞ *PLUS-key, Page 2/18*
	+↵	☞ *PLUS-ENTER-key, Page 2/18*
5	<	☞ *SCREEN-key back, Page 2/18*
6	>	☞ *SCREEN-key scroll forwards, Page 2/19*
	↵	☞ *ENTER-key, Page 2/19*
	C	☞ *DELETE button, Page 2/19*

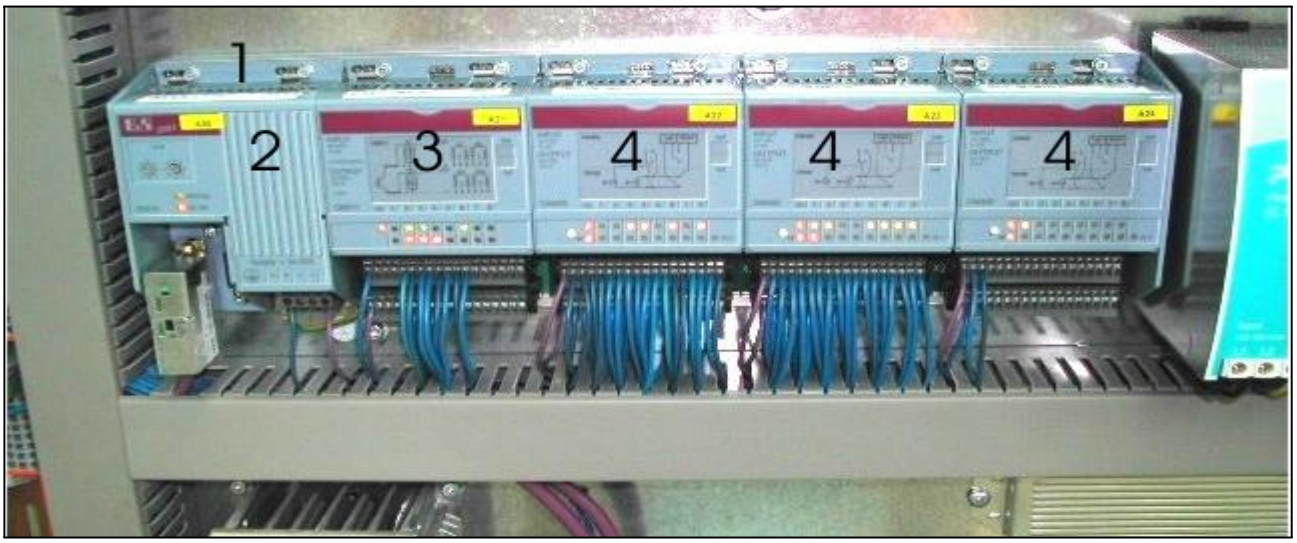
The function of the program keys, immediately below the display unit, depends on the displayed screen.

Program keys are also known as soft keys.

For example, the function of the fourth program key on the basic screen is different from what it is on a data screen.

The corresponding symbol/icon above the key indicates the function.

1.1.3 Overview of display elements for the control system



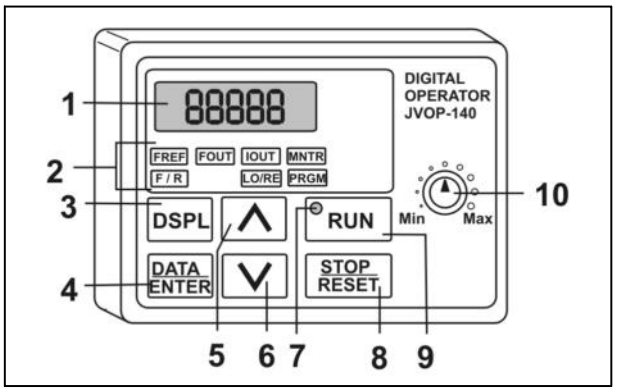
1 ☞ *CPU status, display on the basic module of the control unit, Page 2/23*

2 ☞ *LED conditions of the CAN node module EX470, Page 2/24*

3 ☞ *LED conditions of the combination module CM211, Page 2/25*

4 ☞ *LED conditions of the digital blend module DM465, Page 2/25*

1.1.4 Frequency inverter V7, operator interface panel



1 ☞ *Data display module, frequency inverter, Page 2/26*

2 ☞ *Function display module LED's, frequency inverter, Page 2/26*

3 ☞ *DSPL key, frequency converter, Page 2/20*

4 DATA ENTER ☞ *DATA/ENTER button, frequency converter, Page 2/20*

5 ∧ ☞ *NEXT key, frequency converter, Page 2/20*

7 ∨ ☞ *RETURN key, frequency converter, Page 2/20*

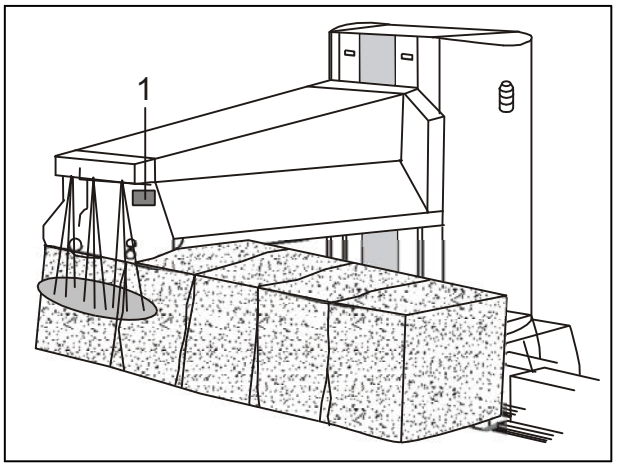
8 ☞ *Status display, frequency inverter, Page 2/26*

9 STOP RESET ☞ *STOP/RESET key, frequency converter, Page 2/20*

10 RUN ☞ *RUN key, frequency converter, Page 2/20*

11 ☞ *SETPOINT SPEC key, frequency converter, Page 2/21*

1.1.5 LED displays of the stop motion sensors



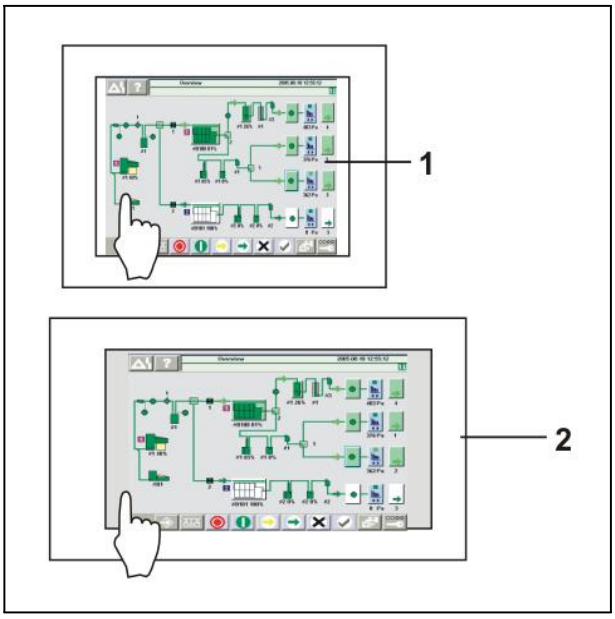
The LED display is located in the front door.

1 ☞ *Stop motion sensors' LED display on the take-off unit, Page 2/26*

1.2 Operating elements

1.2.1 UNIcontrol

1.2.1.1 UNIcontrol (1)



Description of function

The blow room machines are controlled via the UNIcontrol. The machines in the blow room are controlled with this type of controller. Machine-specific settings must be made using the data screen for each machine.

⟹ The operation of the UNIcontrol controller is described in the corresponding manual.

1.2.1.2 UNIcommand (2)

Description of function

The blow room machines are controlled via the UNIcommand . The machines in the blow room are controlled with this type of controller. Machine-specific settings can be made using the data screens for each machine or the UNIcommand.

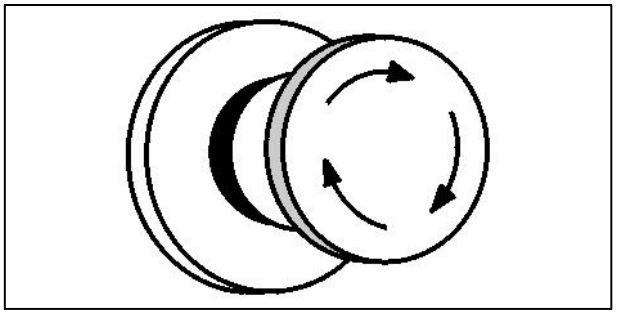
⟹ The operation of the UNIcommand controller is described in the corresponding manual.

1.2.2 Overview of the display and operating elements at the machine operating station

1.2.2.1 EMERGENCY SHUT-DOWN button

Description of function

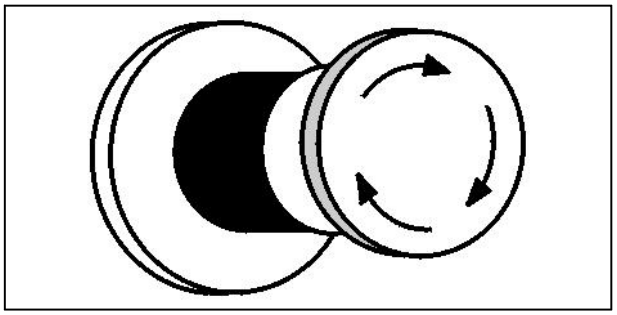
EMERGENCY SHUT-DOWN buttons are intended to be used in an emergency. When an EMERGENCY SHUT-DOWN button is actuated all drives are immediately shut down. This enables danger from moving machine parts to be avoided as quickly as possible.



Engaged

⟹ The machine is put into a safe state as quickly as possible.

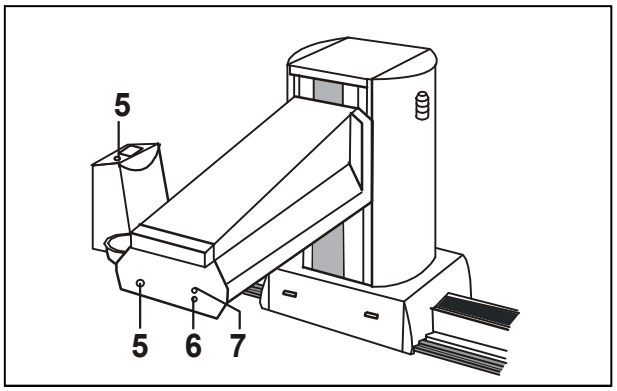
⟹ The machine cannot be started as long as the EMERGENCY SHUT-DOWN button is actuated.



Released

⟹ Operating conditions

1.2.2.2 Push-buttons at the take-off unit



Description of function

The buttons (5) are the EMERGENCY STOP buttons.

⟹ After being pressed, the machine is switched off. The take-off unit requires a few more seconds before it comes to a standstill.

Button (6) can be used to restart the machine.

Button (7) can be used to move the take-off unit upwards.

These buttons serve to remove blockages at the take-off roller.

1.2.2.3 Main switch

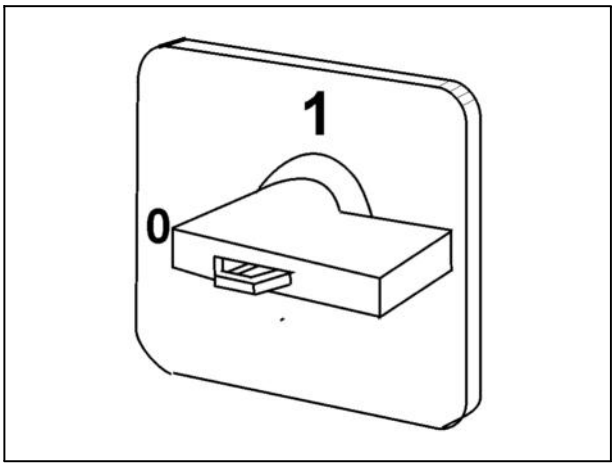
WARNING
When the main switch is on, elements after the main switch are still live.
Injury due to electric shock
Turn off the main switch and secure with a padlock before working on any electric installations.
During the following jobs the main switch must be off and secured: cleaning, repairs, maintenance as well as work on the electric panel.

WARNING
Elements carrying external voltage may still be alive even though the main switch is off.
Injury due to electric shock
The elements carrying external voltage must be cleared before work can begin. They must be cleared by a qualified electrician.

CAUTION
The machine runs down out of control if the main switch is turned off during operation.
The machine may be damaged.
The main switch must only be turned on when the machine is idle.

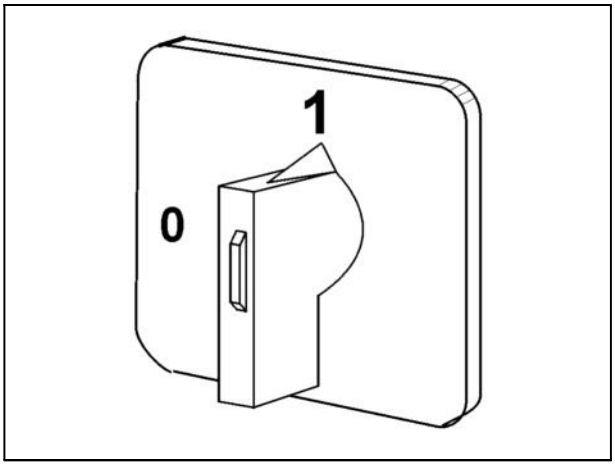
Description of function

Use the main switch to turn the operating power on and off.



Off, position "0"

⟹ The machine is without power. The machine cannot be started.

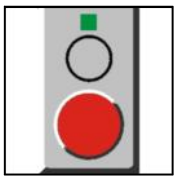


On, position "1"

⟹ Operating position

1.2.3 Keyboard and machine keys

1.2.3.1 STOP button on the operator interface panel

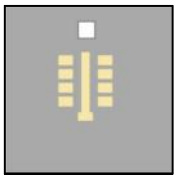


Identifying feature: Red

Description of function

The "STOP button" stops production mode or the currently active process.

1.2.3.2 BALE RELEASE button



Description of function

Jumps to data screen 10.1 with which the bale groups can be released.

1.2.3.3 P0 button: UNIfloc moves to its initial position "P0"

Description of function

The take-off unit first moves to the uppermost position before the machine moves at high speed to its "P0=starting position".

Whenever the machine is in position "P0", all of the scanned bale heights can be set to zero by pressing the "P0 button" three times in succession.

At the next start, the data screen 10.5 is unmasked for 5 seconds, during which time everything can be rescanned if desired.By default, nothing is rescanned.

1.2.3.4 START buttons

Description of function

Starts the machine. Read the description "Starting the machine" in the operating manual.

1.2.3.5 Tower rotation key: rotating tower turns to the left

Description of function

Allows the rotating tower to be turned according to the symbol.

⟹ Pressing the button for the first time switches on the drive unit. The corresponding LED flashes.

⟹ Pressing the button for the second time stops the drive unit.

1.2.3.6 Tower rotation key: rotating tower turns to the right

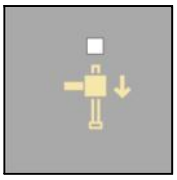
Description of function

Allows the rotating tower to be turned according to the symbol.

⟹ Pressing the button for the first time switches on the drive unit. The corresponding LED flashes.

⟹ Pressing the button for the second time stops the drive unit.

1.2.3.7 Drive button: The tower moves to the operator panel.



Description of function

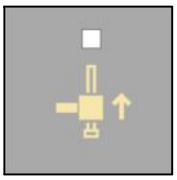
The tower moves towards the operator panel.

⟹ Pressing the button for the first time switches on the drive unit. The corresponding LED flashes.

⟹ Pressing the button for the second time stops the drive unit.

⟹ The UNIfloc stops once a position cam is reached. Press the button again to continue motion.

1.2.3.8 Motion key: the tower moves away from the operating unit



Description of function

The tower moves away from the operating unit

⟹ Pressing the button for the first time switches on the drive unit. The corresponding LED flashes.

⟹ Pressing the button for the second time stops the drive unit.

⟹ The UNIfloc stops once a position cam is reached. Press the button again to continue motion.

1.2.3.9 Take-off unit button: the take-off unit moves downwards

Description of function

The light barriers must be free. The take-off unit moves downwards. It is stopped once it reaches the bottommost position (limit switch).

⟹ Pressing the button for the first time switches on the drive unit. The corresponding LED flashes.

⟹ Pressing the button for the second time stops the drive unit.

1.2.3.10 Take-off unit button: the take-off unit moves upwards

Description of function

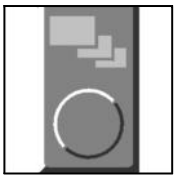
The take-off unit moves upwards.

⟹ Pressing the button for the first time switches on the drive unit. The corresponding LED flashes.

⟹ Pressing the button for the second time stops the drive unit.

1.2.4 Operating keys

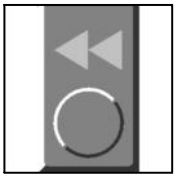
1.2.4.1 BASIC display key



Description of function

Use the "BASIC-DISPLAY-key" to jump from the menu screen or some data screen into the overview (standard basic screen or malfunction screen).

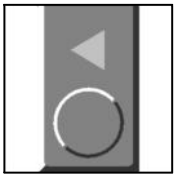
1.2.4.2 MENU-key back



Description of function

In the menu overview the "MENU-key back" marks the preceding line of the menu or displays the menus screen. After the first line of the menu the last line of the menu is displayed.

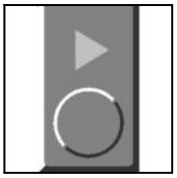
1.2.4.3 DATA-DISPLAY-key-back



Description of function

The "DATA-DISPLAY-key-backward" displays the previous data screen. After the first data screen the menu overview is displayed again.

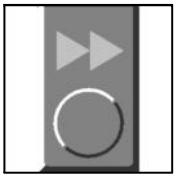
1.2.4.4 "DATA-DISPLAY-key-forward



Description of function

The "DATA-DISPLAY-key-forward" displays the next data screen. After the last data screen the menu overview is displayed again.

1.2.4.5 MENU-key forwards



Description of function

In the menu overview the MENU-key forwards“ marks the next line of the menu or displays the menu screen. After the last line of the menu, the first line of the menu is displayed.

1.2.4.6 LANGUAGE-key

Description of function

Use the "LANGUAGE key" to go to the next configured language.

1.2.5 Program keys

1.2.5.1 DIRECT key, forward

30.2

Description of function

Prerequisite: This button is not included in all control systems.

Use the "DIRECT next key" to go to the configured data screen. You can use the "DIRECT next key" to go directly to a frequently needed data screen. The data screen number indicates which screen the system will go to. The first program key is always assigned.

1.2.5.2 POINTER button back

Description of function

Use the "POINTER button back" to mark the previous menu in the menu-overview. The previous input or list field is marked in the data screen.

1.2.5.3 ENTER-key

Description of function

Prerequisite: This programming key does not appear on the display until the control system has ascertained that the malfunction has been remedied.

Use the "ACKNOWLEDGE-key" to acknowledge a message or a displayed malfunction.

1.2.5.4 DIRECT-key back

40.1

Description of function

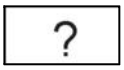
Use the "DIRECT-key back" to jump from the basic screen to the data screen last shown. The occupancy is always on the second program key. After switching on the machine or when the last screen displayed can no longer be displayed, an empty box appears (no function).

1.2.5.5 POINTER button forward

Description of function

Use the POINTER button forward to mark the next menu in the menu-overview. The next input or list field is marked in the data screen.

1.2.5.6 HELP-key



Description of function

If there is context-senstive help for a malfunction screen, it can be displayed by means of the "HELP-key".

1.2.5.7 MENU overview key

Description of function

The "MENU overview key" is used to show the menu overview.

1.2.5.8 START OF LIST key

Description of function

Use the "START OF LIST key" to jump to the beginning of the list in a screen.

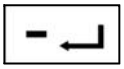
1.2.5.9 MINUS-key

Description of function

Prerequisite: The "MINUS-key" appears with most setting values only if the correct password has previously been entered.

Use the "MINUS-key" to decrease the value. The entry field that has been changed is displayed inverted. The changed value only becomes active for the control system when it is confirmed by the "ENTER key".

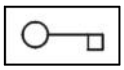
1.2.5.10 MINUS-ENTER-key



Description of function

Use the "MINUS-ENTER-key" to reduce and immediately save the value. The "MINUS-ENTER-key" is only shown with variable values which are accepted immediately. i.e. the transfer of the value need not be explicitly confirmed with the ENTER-key.

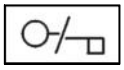
1.2.5.11 PASSWORD-INSERT key



Description of function

Use the "PASSWORD-INSERT-key" to display the first screen for entering the password.

1.2.5.12 PASSWORD-CANCELING key



Description of function

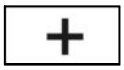
Use the "PASSWORD-CANCELING-key" to cancel the active password authorization

1.2.5.13 END OF LIST key

Description of function

Use the "END-OF-LIST key" to jump to the end of the list in a screen.

1.2.5.14 PLUS-key

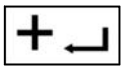


Description of function

Prerequisite: The "PLUS-key" appears with most setting values only if the correct password has previously been entered.

Use the "PLUS key" to increase the value. The entry field to be changed is displayed inversely. The changed value becomes active only for the control system when it has been confirmed by the "ENTER-key".

1.2.5.15 PLUS-ENTER-key



Description of function

Use the "PLUS-ENTER-key" to increase and immediately save the value. The PLUS-ENTER-key is only shown with variable values which are accepted immediately. i.e. the transfer of the value need not be explicitly confirmed with the ENTER-key.

1.2.5.16 SCREEN-key back

Description of function

Use the "SCREEN-key back" to display the previous screen. These may be data screens, basic screens or malfunction screens. The menu-overview displays the last data screen of the preceding menu.

1.2.5.17 SCREEN-key scroll forwards

Description of function

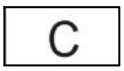
Use the SCREEN-key forward to display the next screen. The menu-overview displays the first data screen of the menu.

1.2.5.18 ENTER-key

Description of function

Press the "ENTER-key" to accept the entry/change of value, i.e. the altered value is saved.

1.2.5.19 DELETE button



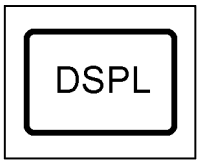
Description of function

Prerequisite: This is not possible on keys which accept the value immediately.

Use the "DELETE button" to delete a change of input. i..e. the last value saved is displayed again.

1.2.6 Frequency inverter V7, operator interface panel

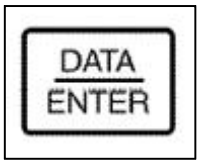
1.2.6.1 DSPL key, frequency converter



Description of function

To switch over the function LEDs.

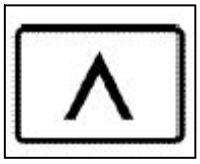
1.2.6.2 DATA/ENTER button, frequency converter



Description of function

If the function LED (PRGM) lights up, press (DATA/ENTER) to change parameter data.

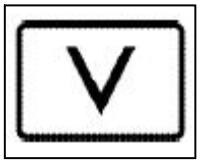
1.2.6.3 NEXT key, frequency converter



Description of function

To increase the set parameter number (set up value).

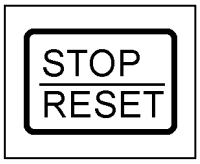
1.2.6.4 RETURN key, frequency converter



Description of function

To decrease the parameter number (set up value).

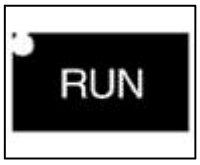
1.2.6.5 STOP/RESET key, frequency converter



Description of function

To shut down the motor (resets the error if pressed)

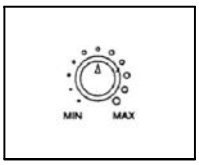
1.2.6.6 RUN key, frequency converter



Description of function

To turn on the motor.

1.2.6.7 SETPOINT SPEC key, frequency converter

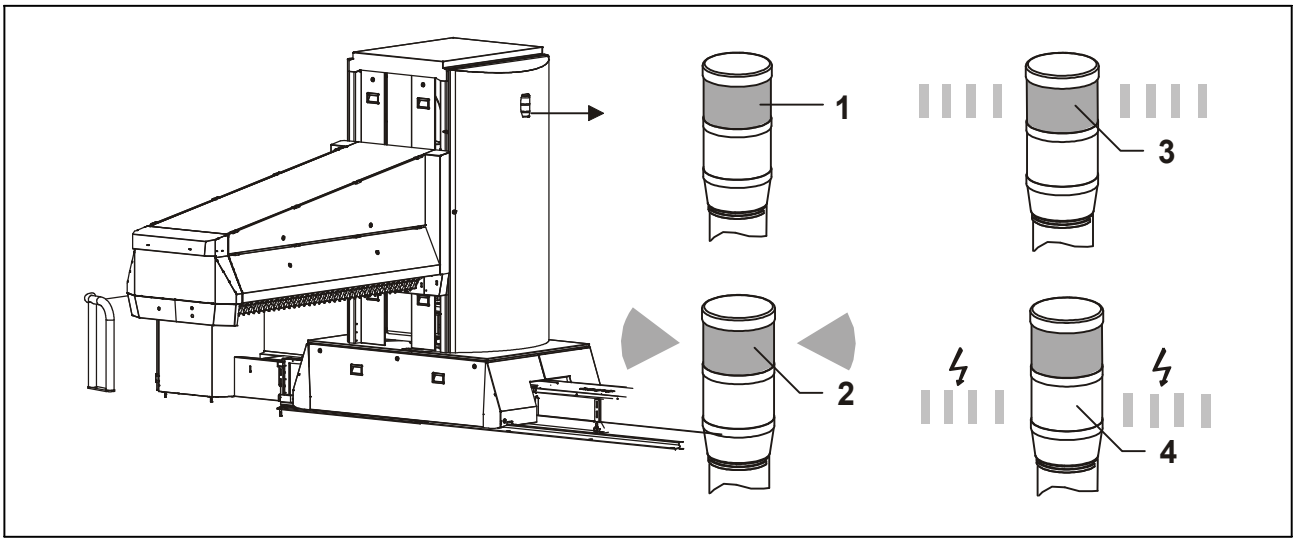


Description of function
Potentiometer to specify frequency setpoint

1.3 Display elements

1.3.1 Overview of the display and operating elements at the machine operating station

1.3.1.1 Signal lamp



Type of element: Clearly visible lights on both sides of the turret.
The signal lights indicate the momentary operating state of the machine.

Display state

- (1) Off, not lit up
  Main switch is switched off
  The machine is producing. No intervention by operator necessary
- (2) On, lit up
  The machine is at a standstill.
  An error has occured
  The machine has been switched off by the STOP button
- (3) Flashing
  The take-off process of a group of bales is almost finished or is finished.
- (4) Flashing
  Flashes for 3 seconds after pressing the START key.
  Flashes for 3 seconds before starting production after an interruption in the material feed.
  Flashes while the rotating tower is turning.

1.3.2 LED status display

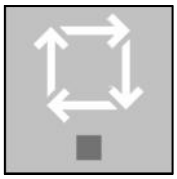
1.3.2.1 LED electric power supply

Type of element: LED

Display state

- Does not light up
  There is no control voltage
  The main switch is off
- Lights up
  There is control voltage
  The main switch is on
- Flashing
  An interruption in the power supply has caused the control system to switch off.
  After switching on, the LED flashes until a control key or machine key is actuated.

1.3.2.2 LED automatic mode (production mode)



Type of element: LED

Display state

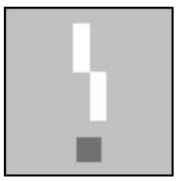
- Does not light up
  Production mode has stopped.
- Lights up
  Machine runs in automatic mode (production mode).
  State of the machine= Production mode
- Flashing
  Going into production mode

1.3.2.3 LED "Alert"

Type of element: LED

Lights up if there is an alert.

1.3.2.4 LED "Malfunction"



Type of element: LED

Lights up if there is a malfunction.

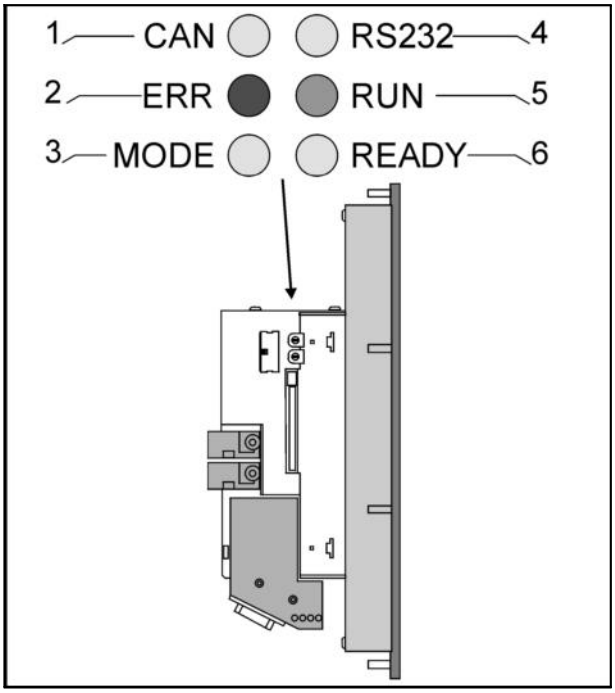
1.3.2.5 LED call "Service personnel"

Type of element: LED

Lights up if you have to call service personnel to rectify a malfunction.

1.3.3 Overview of display elements for the control system

1.3.3.1 CPU status, display on the basic module of the control unit



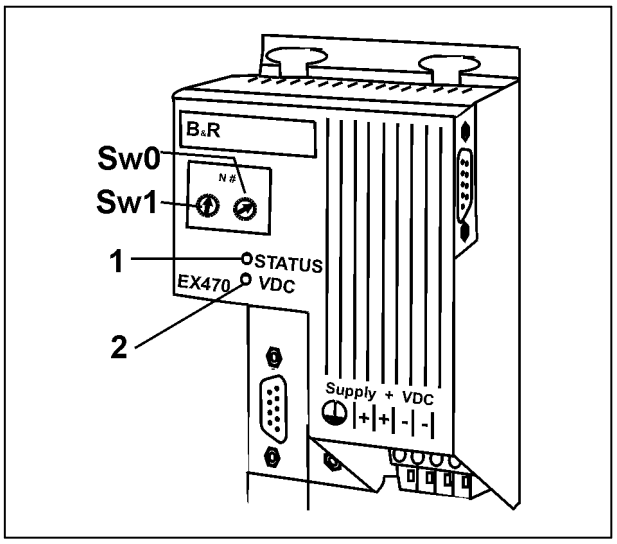
Type of element: 6 LEDs

The six status LEDs indicate the operating mode of the control unit.

Display state

- (1) Flashing, Yellow
  Data communication from or to the CAN controller.
- (2) Lights up, Red
  Service mode is active, e.g. for software download.
- (3) Lights up, Yellow
  Software download into Flash-PROM is running
- (4) Flashing, Yellow
  Indicates whether data is being received or sent at the RS232-interface
- (5) Lights up, Green
  RUN.
- (6) Lights up, Yellow
  Service mode is active.

1.3.3.2 LED conditions of the CAN node module EX470



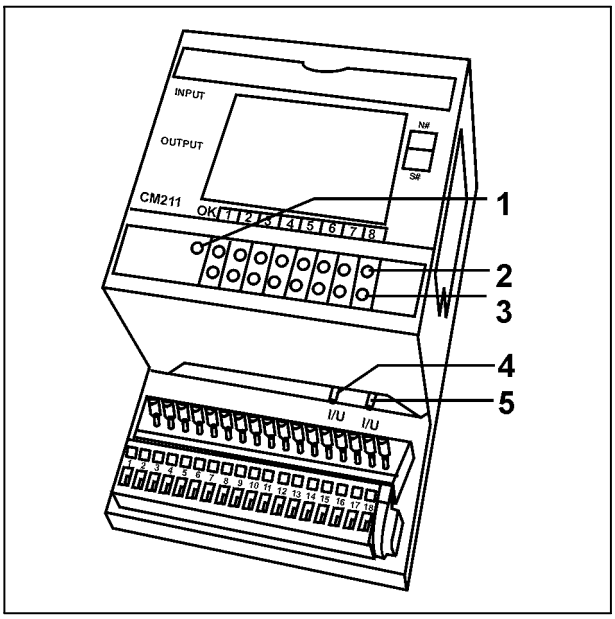
Type of element: 2 LED's

The 2 status LED's show the behavior of the module. In case of errors, these LED's may be very helpful in trouble shooting

Display state

- (1) On, Red
  Reset
- (1) On, Green
  Normal operation: Data exchange functioning.
- (1) Blinking, Green
  Initialization phase.
- (1) Blinks rapidly, Green
  Data not received within a pre-determined time.
- (1) On, Yellow
  Outputs are defective.
- (1) Blinking, Yellow
  Voltage on one of the IO modules not in order.
- (1) Blinks rapidly, Yellow
  The outputs are drawing to much power.
- (1) Blinking, Red
  Warning New node address is not accepted in operation.
- (2) On
  The internal power pack voltage is in order.
- (2) Off
  All outputs are being reset and the entire bus nodes are being re-initialized.

1.3.3.3 LED conditions of the combination module CM211



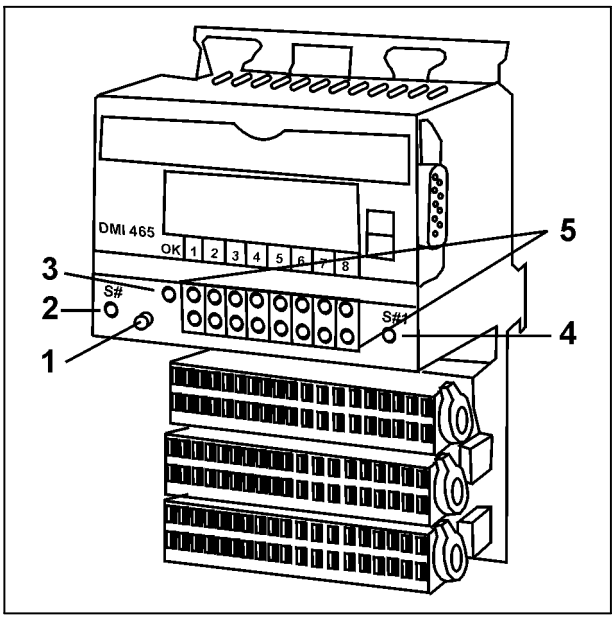
Type of element: LED's

The status LED's indicate the behavior of the module. In case of errors, these LED's may be very helpful in trouble shooting

Display state

- (1) On, Orange
  Supply voltage in order (> 18 V).
- (2) On, Green
  The corresponding input is set.
- (3) On, Orange
  The corresponding output is set.

1.3.3.4 LED conditions of the digital blend module DM465



Type of element: LED's

The status LED's indicate the behavior of the module. In case of errors, these LED's may be very helpful in trouble shooting

Display state

- (2) On, Yellow
  Outputs 1-8 are functioning correctly.
- (2) Flashing, Yellow
  One of the outputs 1-8 is not functioning correctly.
- (3) On, Yellow
  Supply voltage in order (> 18 V).
- (4) On, Yellow
  Outputs 9-16 are functioning correctly.
- (4) Flashing, Yellow
  Outputs 9-16 are not functioning correctly.
- (5) On, Green
  The corresponding input is set.
- (5) On, Yellow
  The corresponding output is set.
- (5) Flashing, Yellow
  The corresponding output is not functioning correctly.

1.3.4 Frequency inverter V7, operator interface panel

1.3.4.1 Data display module, frequency inverter

Type of element: 7 segment display module

1.3.4.2 Function display module LED's, frequency inverter

Type of element: LED

The LED switches on to another function each time it is switched. The data shown can then be changed.

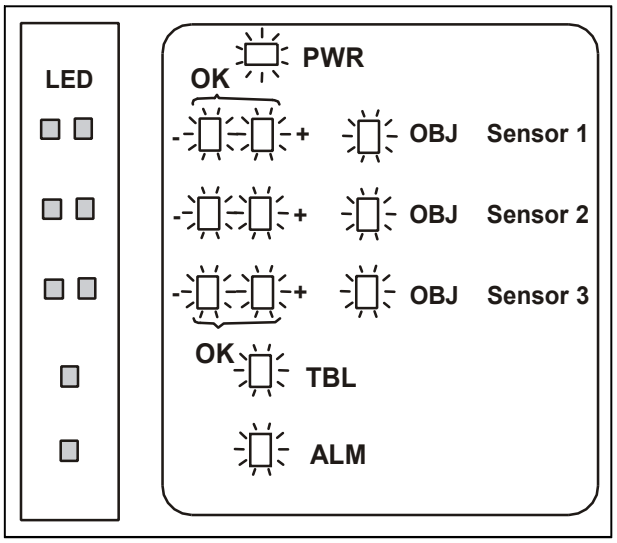
1.3.4.3 Status display, frequency inverter

Type of element: LED

Status display (same function as the display module RUN)

1.3.5 LED displays of the stop motion sensors

1.3.5.1 Stop motion sensors' LED display on the take-off unit



Type of element: LEDs

Display state

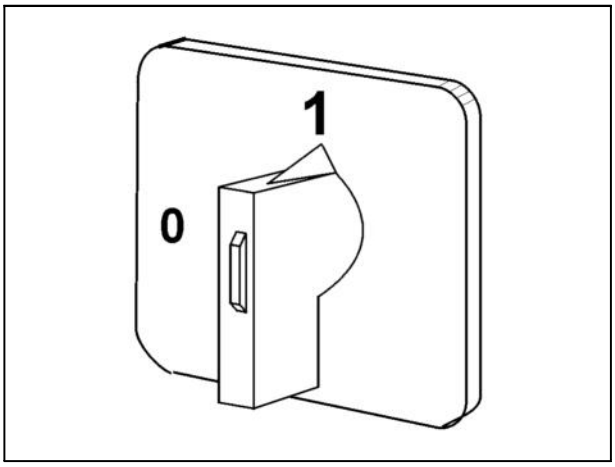
- PWR: LED lights up.
  Supply voltage is OK.
- Both LEDs (-OK and +OK) light up.
  Reflector detected. Sensors are OK.
- OBJ: LED lights up
  TBL: Malfunction
  e.g. broken cable
- ALM: LED lights up red.
  Alarm: Too large a discrepancy between the measured object distances of the three sensors.
- Only the (-OK) LED lights up.
  The reflector will have to be re-adjusted. The signal is too weak.
- Only the (+OK) LED lights up.
  The reflector will have to be re-adjusted. The signal is too strong.

2 Operation

2.1 Safety

2.1.1 Switch on the main switch.

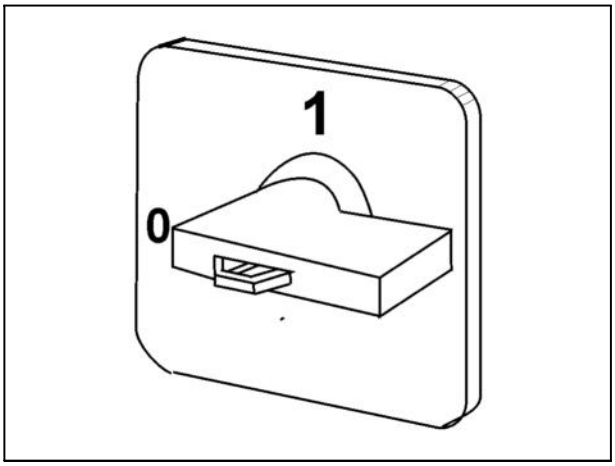
Steps



– Turn the main switch to position "1".
  ⟹ The LED for the control voltage begins to flash, light up
  ☞ Main switch, Page 2/11

2.1.2 Switch off the main switch.

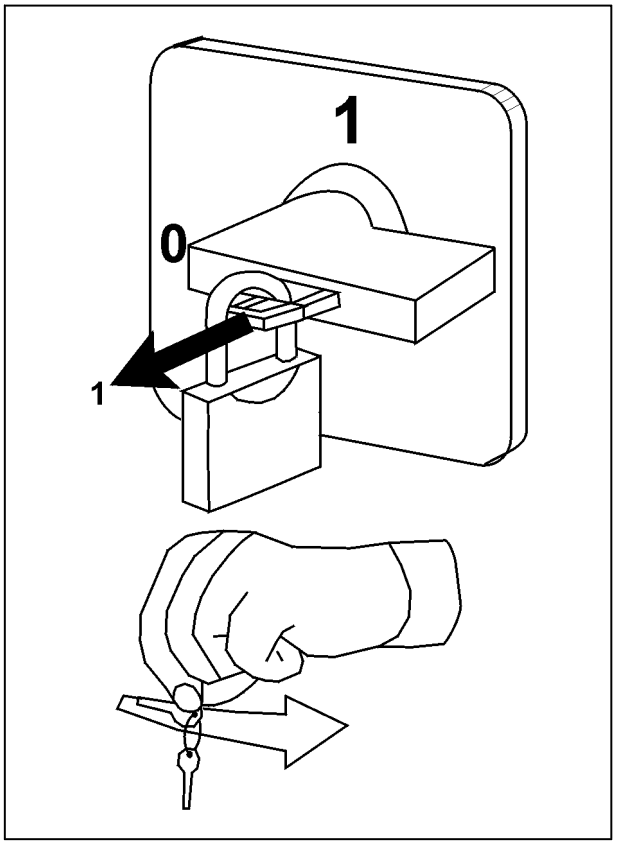
Steps



– Turn the main switch to position "0".
  ⟹ The LED for the control voltage goes out.
  ☞ Main switch, Page 2/11

2.1.3 Turn off main switch and secure with a padlock

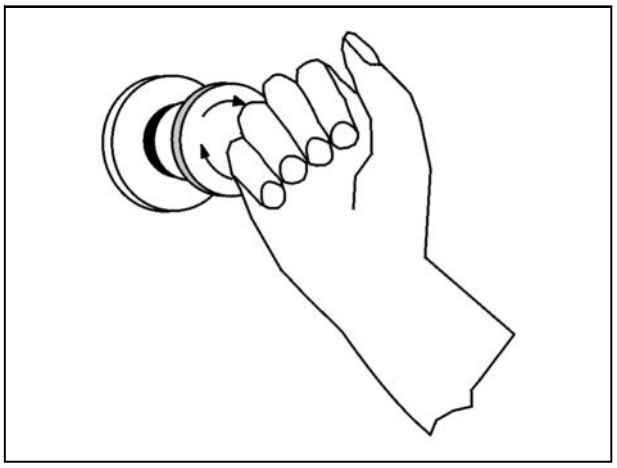
Steps



– Switch off the main switch.
– Pull out the flap in the direction of the arrow and insert the padlock.
– Close the lock.

2.1.4 Engaging the emergency stop

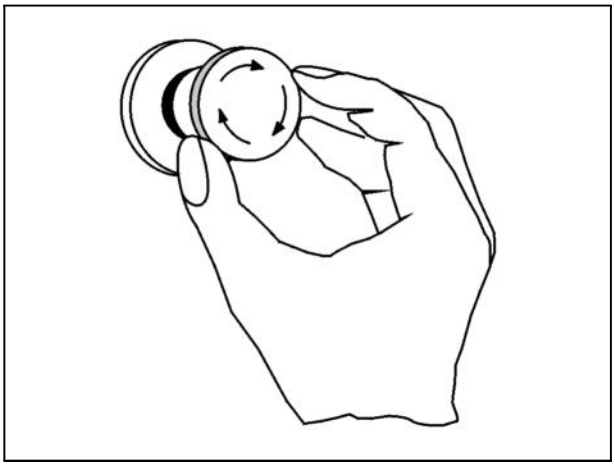
Steps



– Press the EMERGENCY STOP button.
  ⟹ The machine is put into a safe operating state as quickly as possible.
  ☞ EMERGENCY SHUT-DOWN button, Page 2/10

2.1.5 Resetting the EMERGENCY STOP button

Steps



– **Prerequisite:** The reason for engaging the EMERGENCY STOP have been clarified and remedied.
Turn the EMERGENCY STOP button clockwise.
⟹ The EMERGENCY STOP button will pop up. Doing so has reset the EMERGENCY STOP button; it is no longer engaged.
☞ EMERGENCY SHUT-DOWN button, Page 2/10

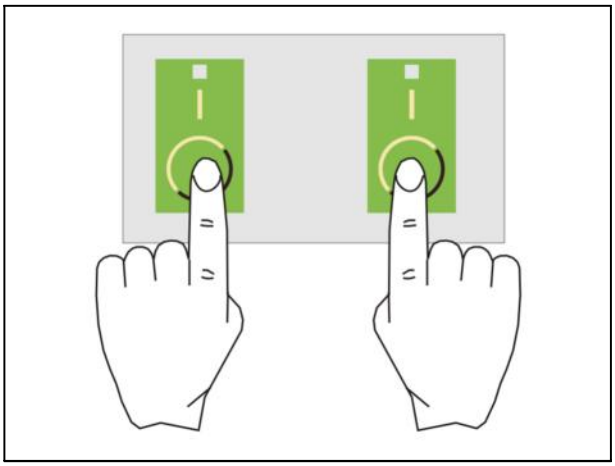
2.2 Machine operation

2.2.1 Start the machine

Preparatory work

– The number of assortments, number of bale groups, production and release have been programmed into the machine.

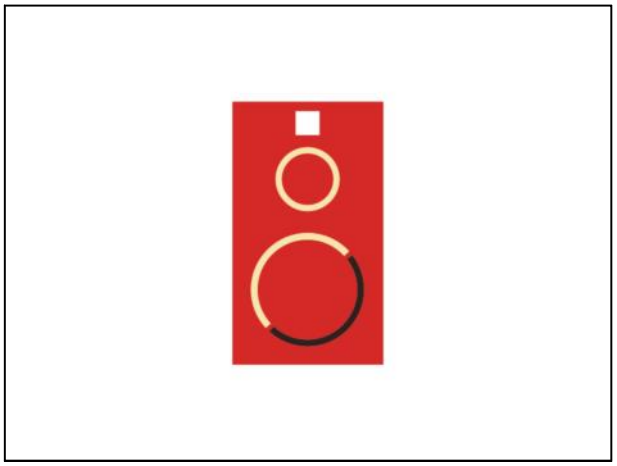
Steps



– **Prerequisite:** The main switch is on. No malfunctions are indicated. Press a START button to delete any malfunctions which have already been remedied.
Press both START buttons simultaneously. Do not press the space bar that is located between the two START buttons. After a P0 motion has been performed, a window appears with the question “Rescan all bale groups?”. Use the arrow buttons to select “Yes” or “No” and confirm the entry by pressing the ENTER button. This question also appears after a long period of idleness, since the bales might possibly have grown in height..
⟹ UNIfloc is in “Automatic mode”. If the next machine downstream requests material, the machine begins the scanning process during the first pass, unless otherwise desired. The bale height and the time to complete a pass are measured. The take-off depth is calculated according to the programmed data. The take-off unit then strips the bales in full automatic mode.

2.2.2 Stop machine

Steps



– Use the STOP button to stop the machine at any time.

2.2.3 Turning off "Bale profiling"

If "Bale profiling" is turned off, the lifting motion is stopped immediately to retrace the bale contour. Then all the groups of bales are retraced horizontally according to the highest heights of the bale profile at the time. "Bale profiling" can be turned off at any time.

Steps

– The following data mask allows you to turn "Bale profiling" off.

☞ 41.3, Page 2/65

2.2.4 Turning on "Bale profiling"

The turning on of "Bale profiling" will only take effect when a group of bales is scanned. The contours of the already scanned groups of bales continue to be retraced horizontally without "Bale profiling". "Bale profiling" can be turned on at any time.

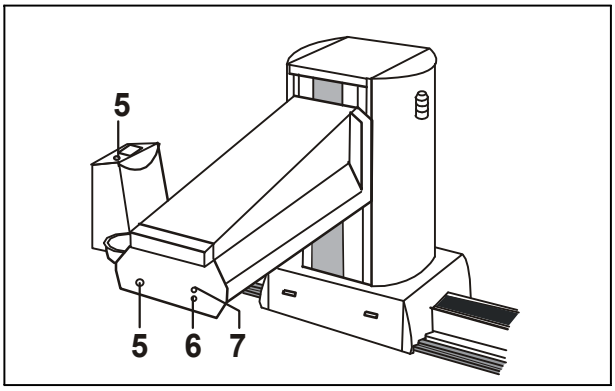
Steps

– The following data mask allows you to turn "Bale profiling" on.

☞ 41.3, Page 2/65

2.2.5 Clear the clog in the take-off unit

Steps



– To clear the clog in the take-off unit, use the (7) key to move up the unit.

  ☞ Push-buttons at the take-off unit, Page 2/10

– Press the EMERGENCY STOP button (5).

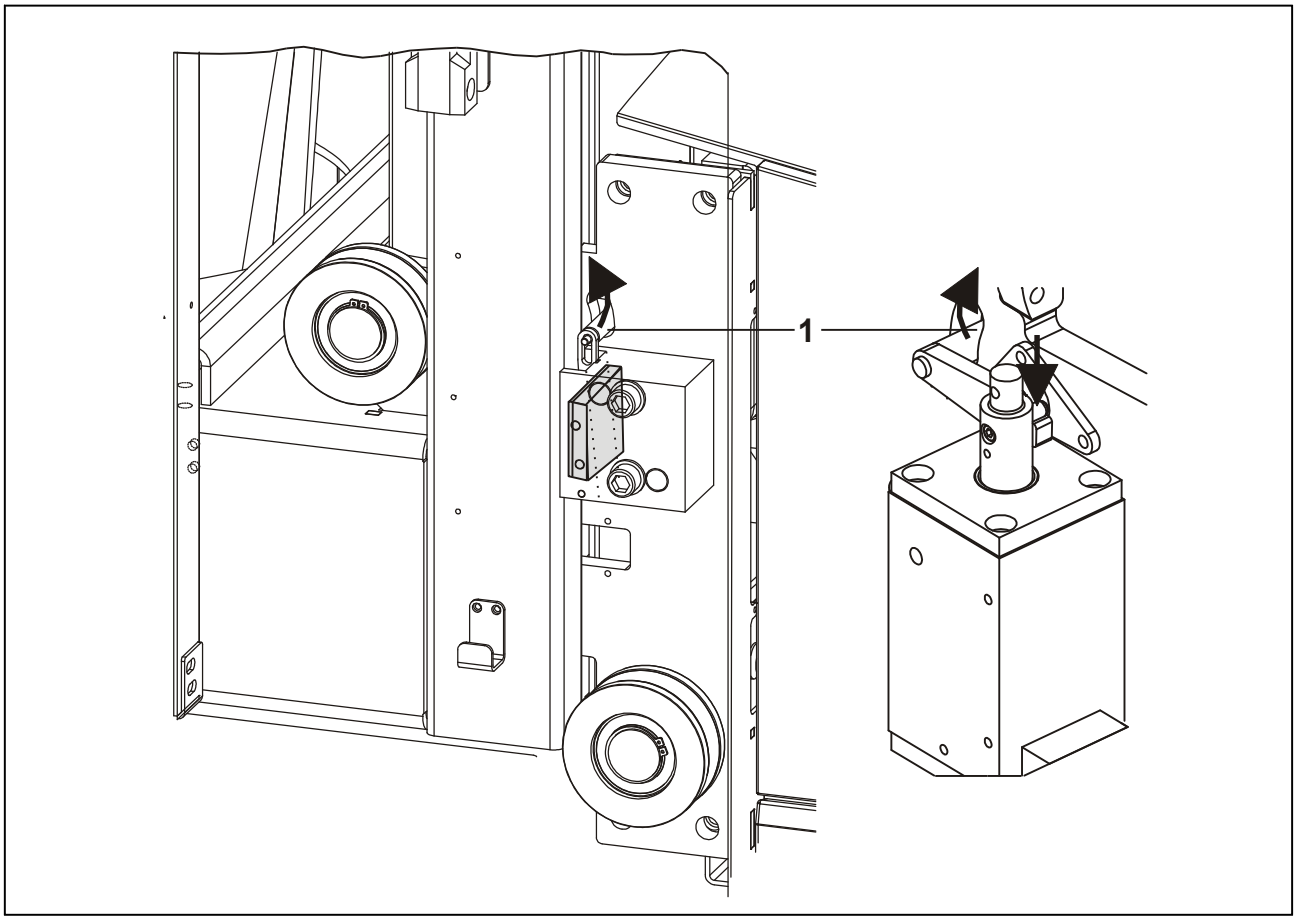
– Clear the blockage.

– After you have cleared the blockage, release the EMERGENCY STOP button (5).

– Use the green "(6)" key to start the machine.

2.2.6 Release the anti-drop device

Steps



– The brake for the drop protection device has been activated.
  ⟹ Check whether or not one of the chains is broken or a protruding object has moved the (1).

Lever has been moved, chain is in a satisfactory condition

– Check the functioning of the wedge brake and determine what caused the lever (1) to be moved.
  Note: Neither cover plates nor any other objects are to come into contact with the lever (1).

– After determining what caused the lever (1) to move, the take-off unit is to be lifted via the push-button.
  ☞ Push-buttons at the take-off unit, Page 2/10

Broken chain

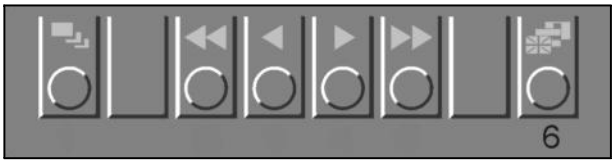
– Replace the relevant chain.
  Note: Whenever one of the chains at the take-off unit is broken, both chains must always be replaced.

2.3 Operating unit

2.3.1 Changing the language

The LANGUAGE SELECTION key can be used to choose one of several possible languages.

Steps



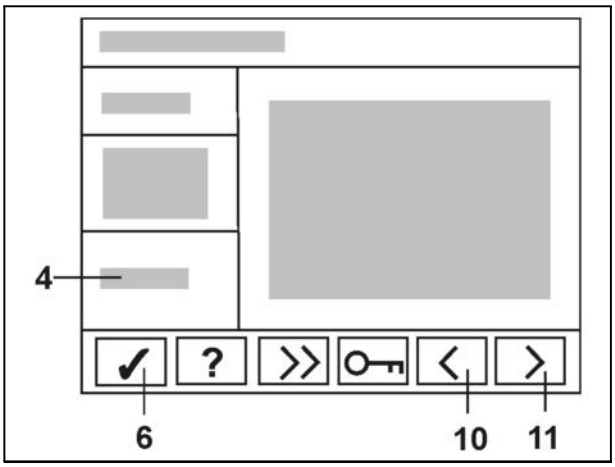
– **Prerequisite:** The required language must be activated in the data screen .
☞ 40.2, Page 2/62
Press the LANGUAGE SELECTION key (6) repeatedly, until the required language is displayed.
☞ LANGUAGE-key, Page 2/16

2.3.2 Acknowledging a fault or warning

In the event of a fault, the corresponding fault screen is shown on the main screen.

Note: The ACKNOWLEDGE key or the START key is used to reset faults that are no longer pending.

Steps



– Press the ACKNOWLEDGE key (6).
⟹ If the fault has been corrected, then this will be reset, i.e. no longer displayed.
Note: The ACKNOWLEDGE key only appears if the displayed fault is no longer pending. Otherwise, the fault must first be corrected.
☞ ENTER-key, Page 2/16

– If several faults are pending, then this will be visible from the box (4). The next fault can be displayed using the key (11). The previous fault can be displayed with the key (10).

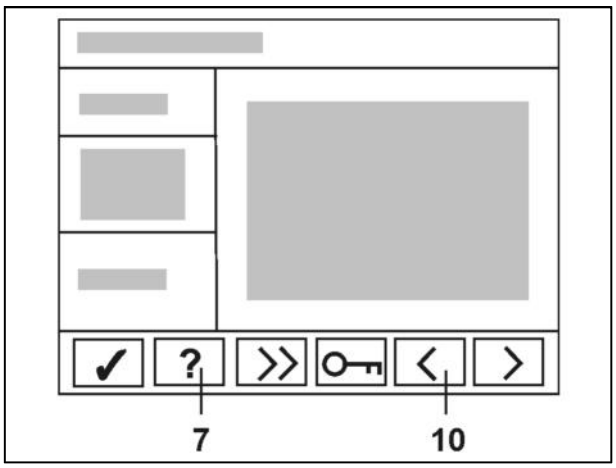
– If the START button is pressed, the machine will start, provided all faults have been corrected. Otherwise, the faults that still need to be corrected are displayed.

2.3.3 Displaying additional help information for troubleshooting

If a fault is indicated, then additional help text can be displayed, in part.

Note: Help text is only available for complex faults.

Steps



– Press the HELP key (7).
  ⟹ The fault display is overwritten with additional help text.
  ☞ HELP-key, Page 2/17
  ☞ Example of a message display, Page 2/48

– Press the PREVIOUS SCREEN key (10).
  ⟹ The fault screen is displayed again
  ☞ SCREEN-key back, Page 2/18

2.3.4 Entering password

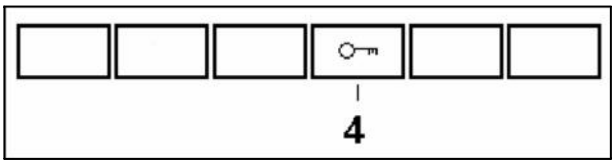
Some entries and tests on data screens require authorisation before they can be executed, that is, a password has to be entered beforehand.

Authorization levels

Level 0 (no password)	Read
Level 1 (password required)	Change
Level 2 (password required)	Service
Level master (password required)	Change passwords

Note: The list of menu and data screens shows which type of authorisation is required for an intended action.

Steps

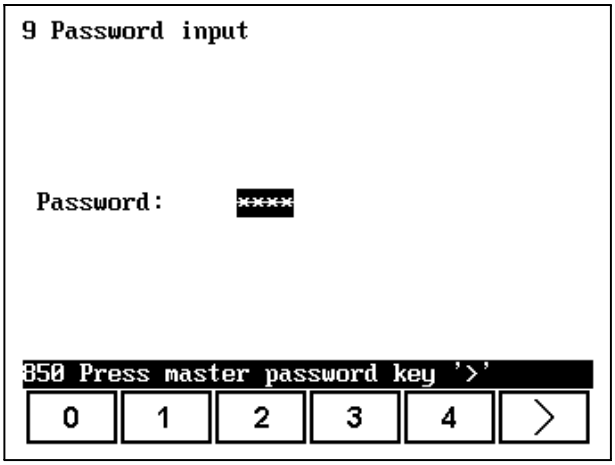


– Select main screen.
☞ Displaying the main screen, Page 2/39

– In the main screen, press the ENTER PASSWORD key (4).

⟹ The screen for password entry is displayed.

☞ 9, Page 2/74



– Enter the appropriate four-digit password using the program buttons 1 - 5..

Note: The digits for the password must lie between 0 and 4, and these correspond to the first 5 program buttons.

– The C key can be used to delete the code and re-enter it.

– After entering the password, press one of the keys "<<", "<", ">", ">>" or the MAIN SCREEN key.

⟹ A crossed-out key (4) is displayed on the main screen, i.e. the password has been accepted and the corresponding authorisation (e.g. for making entries) has been enabled.

☞ PASSWORD-CANCELING key, Page 2/18

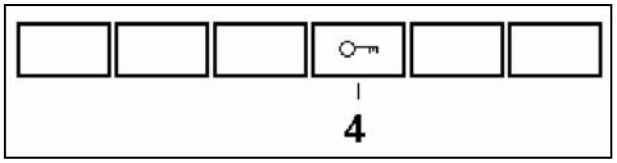
– After the password has been entered, the menu overview appears and the corresponding menus are now visible and active.

2.3.5 Changing passwords

Passwords for the various types of authorisation can be assigned and changed individually. The master password can also be changed.

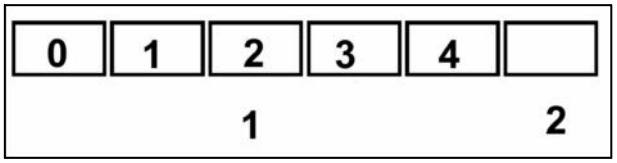
Note: In order to change the password, the master password must be known.

Steps

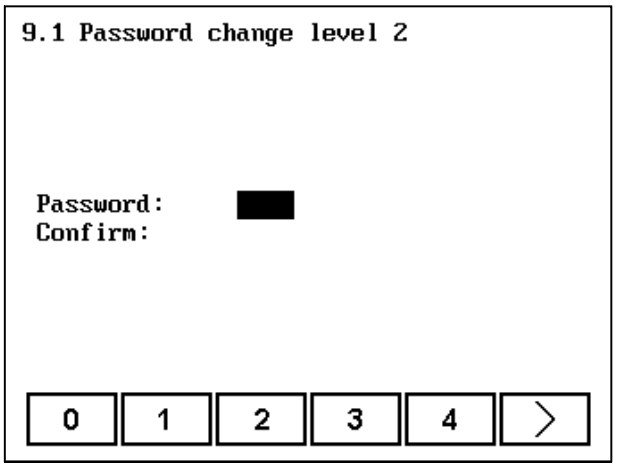


– Select main screen.
  ☞ Displaying the main screen, Page 2/39

– In the main screen, press the ENTER PASSWORD key (4).
  ⟹ The screen for password entry is displayed.
  ☞ Entering password, Page 2/35
  ☞ 9, Page 2/74



– Enter the master password (1) and press the NEXT SCREEN key (2).
  ⟹ The screen for changing the password is displayed.
  ☞ 9.1, Page 2/74



– Enter the new code twice per password and display the next password step by pressing the sixth program key “>”.

  Note: If one does not wish to change a password, then one can move on to the next password step by pressing the program key “>”.

2.3.6 Cancelling the password authorisation

Cancelling the password authorisation can help to prevent any unauthorised person from altering data or executing test functions.

Note: The password authorisation for making entries will automatically be cancelled if no key is pressed after a period of 10 minutes (for tests, after a period of 10 hours).

Steps

– Select main screen.
☞ Displaying the main screen, Page 2/39

– In the main screen, press the CANCEL PASSWORD key (4).
⟹ The key symbol for the program key is no longer crossed out, i.e. the password authorisation has been cancelled. The password must be entered again before any data can be altered or any tests run.
☞ PASSWORD-CANCELING key, Page 2/18

2.3.7 What to do if the master password is forgotten

Note: The master password is needed to change passwords. This password should only be known to one administrator.

Steps

– If the master password is no longer known, a master algorithm must be requested from Rieter which will be valid for one day.

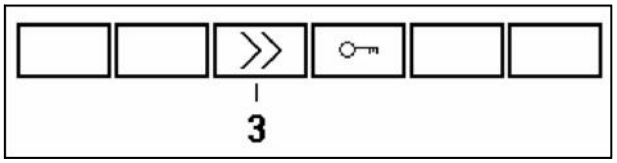
– On delivery of the machine, the S2 - S3 types of authorisation are assigned the standard password 1001. The master password is 1423.

2.3.8 Displaying individual data screens

In order to view actual values, change settings or run tests, it is necessary to display the appropriate data screen.

Note: Before a data screen with authorisation protection can be displayed, the appropriate password must first be entered.

Steps

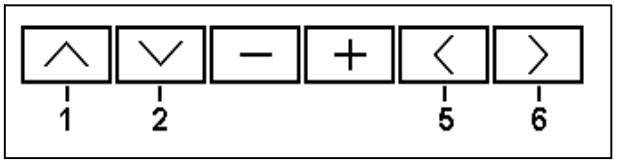


– **Prerequisite:** A main screen (overview or fault screen) is displayed.

Press the MENU OVERVIEW key (3).

⟹ The menu overview is displayed.

☞ MENU overview key, Page 2/17



– Keep pressing the CURSOR FORWARD key (2) or the CURSOR BACK key (1) until the required menu is marked.

☞ POINTER button forward, Page 2/17

☞ POINTER button back, Page 2/16

– Keep pressing the NEXT SCREEN key (6) or the PREVIOUS SCREEN key (5), until the required screen is displayed.

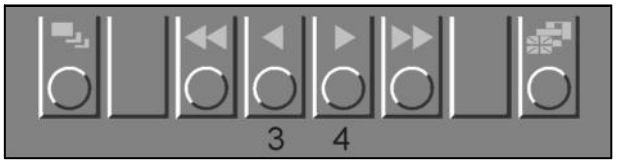
☞ SCREEN-key scroll forwards, Page 2/19

☞ Accessing any data screen via a single key, Page 2/38,

2.3.9 Accessing any data screen via a single key

There is another simple means of accessing the data screens.

Steps



– Press the DATA SCREEN FORWARD key (4) or the DATA SCREEN BACK key (3).

⟹ Each time the key is pressed, the next or previous data screen or menu is displayed.

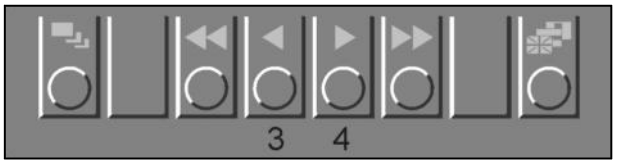
☞ "DATA-DISPLAY-key-forward, Page 2/15

☞ DATA-DISPLAY-key-back, Page 2/15

2.3.10 Accessing any data screen via a single key

There is another simple means of accessing the data screens.

Steps



– Press the DATA SCREEN FORWARD key (4) or the DATA SCREEN BACK key (3).

⟹ Each time the key is pressed, the next or previous data screen or menu is displayed.

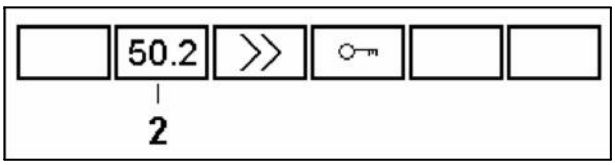
☞ "DATA-DISPLAY-key-forward, Page 2/15

☞ DATA-DISPLAY-key-back, Page 2/15

2.3.11 Displaying the most-recently accessed data screen

In the overview screen, the DIRECT FORWARD key or the DIRECT BACK key can be used to bring up the data screen, that was most recently displayed. (In the example given here, this is data screen 50.2.)

Steps



– Press the DIRECT BACK key (2).
  ⟹ The most-recently displayed data screen is displayed once more. (In the example given here, this is data screen 50.2.)
  ☞ DIRECT-key back, Page 2/16

2.3.12 Scrolling within similar screens

Scrolling from one overview screen to another, if there are several of them. Displaying the next fault, if there are several faults pending at the same time.

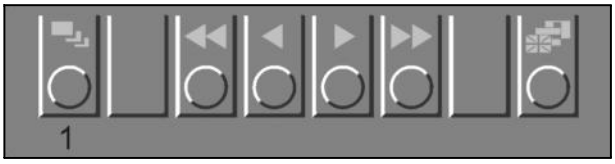
Steps

– Press the SCREEN FORWARD key or SCREEN BACK key (program key 5 or 6).
  ⟹ The next screens are selected.
  ☞ SCREEN-key scroll forwards, Page 2/19
  ☞ SCREEN-key back, Page 2/18

2.3.13 Displaying the main screen

Regardless of which screen is currently being displayed on the display unit, the main screen (standard overview screen or fault display) can be brought up by pressing a single button.

Steps



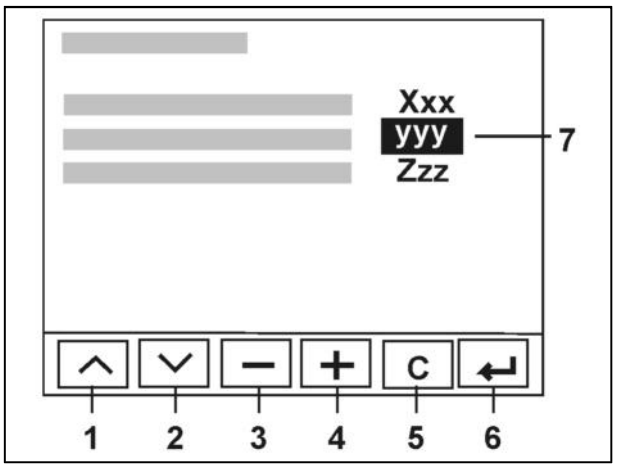
– Press the MAIN SCREEN key (1) once.
  ☞ BASIC display key, Page 2/15

– If a fault is displayed, the standard overview screen appears all the while the MAIN SCREEN key (1) is pressed.
  ☞ BASIC display key, Page 2/15

2.3.14 Altering values/settings in data screens

Values/settings can be changed in the associated data screens. To do so, first enter the password for authorisation to make entries.

Steps



– If several changeable values are displayed on the data screen, first mark the relevant value (7) using the CURSOR FORWARD key (2) or the CURSOR BACK key (1).
  ☞ POINTER button forward, Page 2/17
  ☞ POINTER button back, Page 2/16

– Alter the value using the PLUS key (4) or the MINUS key (3).
  ☞ MINUS-key, Page 2/17
  ☞ PLUS-key, Page 2/18

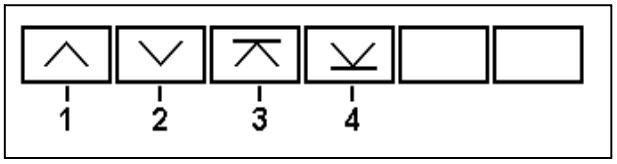
– If the value is altered incorrectly, the DELETE key (5) can be pressed.
  ⟹ The original value (prior to pressing the "+" or "-" key) is displayed again.
  Note: The DELETE key only appears for changed values that have to be confirmed.
  ☞ DELETE button, Page 2/19

– Confirm the entry by pressing the ENTER key (6); this saves the changed value.
  Note: The ENTER key only appears for changed values that have to be confirmed.
  ☞ ENTER-key, Page 2/19

2.3.15 Scrolling through lists

Displayed lists may be larger and therefore may not be displayed completely on the display unit. For this reason, the following program keys are shown on the data screen.

Steps



– Press the CURSOR FORWARD key (2) or the CURSOR BACK key (1).
  ⟹ The highlighted area moves one place up or down.
  ☞ POINTER button back, Page 2/16
  ☞ POINTER button forward, Page 2/17

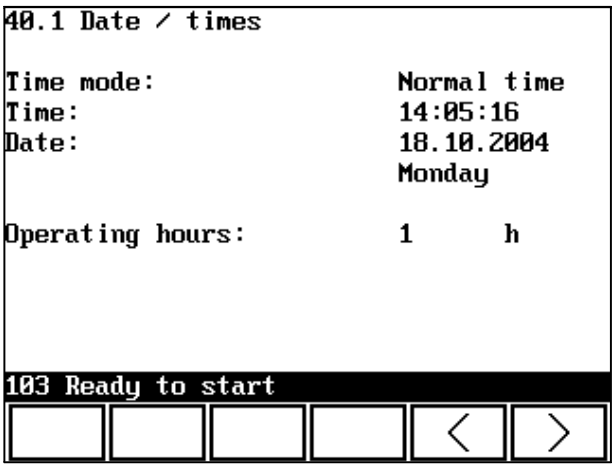
– Press the TOP OF LIST key (3).
  ⟹ The start of the list will be displayed.
  ☞ START OF LIST key, Page 2/17

– Press the BOTTOM OF LIST key (4).
  ⟹ The end of the list will be displayed.
  ☞ END OF LIST key, Page 2/18

2.3.16 Standard time/summer time changeover

The changeover from standard time (winter time) to summer time, or vice versa, is made at the operator panel.

Steps



– **Prerequisite:** First enter the password for making entries.
  Display data screen 40.1.
  ☞ 40.1, Page 2/62
– On the second line, use the PLUS key or the MINUS key. to change the time.
– Press the ENTER key to save the change.
  ⟹ The time shown in the data screen will now have moved forward or back by one hour.
  ☞ ENTER-key, Page 2/19

2.3.17 Testing sensors and switching the I/O status on the signal lamp

All elements, such as sensors, switches etc., whose I/O status is read in by the control unit, can be tested. This is carried out in data screen 81.1. The I/O status (1 or 0) of the selected element is displayed on the data screen as well as at the signal lamp.

Steps

– Display data screen 80.1 and select the “service mode” operating mode.

Steps

– Select the test data screens (82.1 bis 8n.n) which enable the function test to be carried out.

Steps

– Display data screen 81.1.
– Select element group and element.
  ⟹ The I/O status is displayed in the data screen (“1” corresponds to 24 VDC, “0” to 0 VDC). Display via signal lamp: “0” corresponds to a dark display, and “1” to a lit display.

2.3.18 Executing test functions

Individual machine functions can be executed for troubleshooting purposes and maintenance work.

Steps

DANGER
In so doing, motion will be initiated.
No admittance to danger area
Before proceeding, the operator must make sure that no person is present in the hazard zone.

– All doors and covers for the safety circuit must be closed.

– **Prerequisite:** The valid password must first be entered.
Display data screen 80.1 and select the “service mode” operating mode.

– Select the data screen (82.1 to 8n.n) enabling the function test to be carried out.

– Select the element to be tested.

– Select the required function.

– Press the ENTER key, to confirm the selection.
☞ ENTER-key, Page 2/19

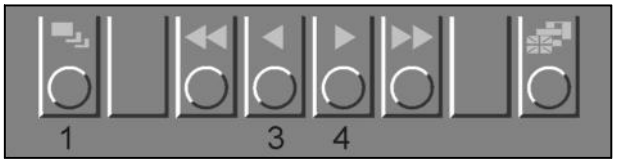
– Press the green START key.
⟹ The function is executed. The data screen also shows the statuses of the corresponding sensors and possibly whether the execution of the function has started (1) or stopped (0).

Note: For most functions, the execution of the function is stopped immediately as soon as the START key is released. Otherwise the execution of the function can always be stopped by pressing the STOP key.

2.3.19 Setting the brightness of the display

If the display is difficult to read or if some parts of it are dark, this can be overcome by adjusting the brightness.

Steps



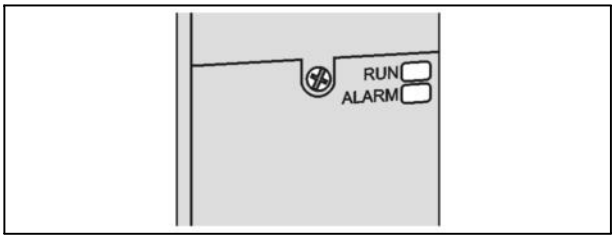
– Press the MAIN SCREEN key (1) and the DATA SCREEN FORWARD key (4) simultaneously.
⟹ The screen becomes brighter.
☞ BASIC display key, Page 2/15
☞ "DATA-DISPLAY-key-forward, Page 2/15

– Press the MAIN SCREEN key (1) and the DATA SCREEN BACK key (3) simultaneously.
⟹ The screen becomes darker.
☞ BASIC display key, Page 2/15
☞ DATA-DISPLAY-key-back, Page 2/15

2.4 Frequency converter

2.4.1 Reading off the charge indicator

Steps



– Check the LEDs (RUN) and (ALARM) visually. Check if the LEDs light up.

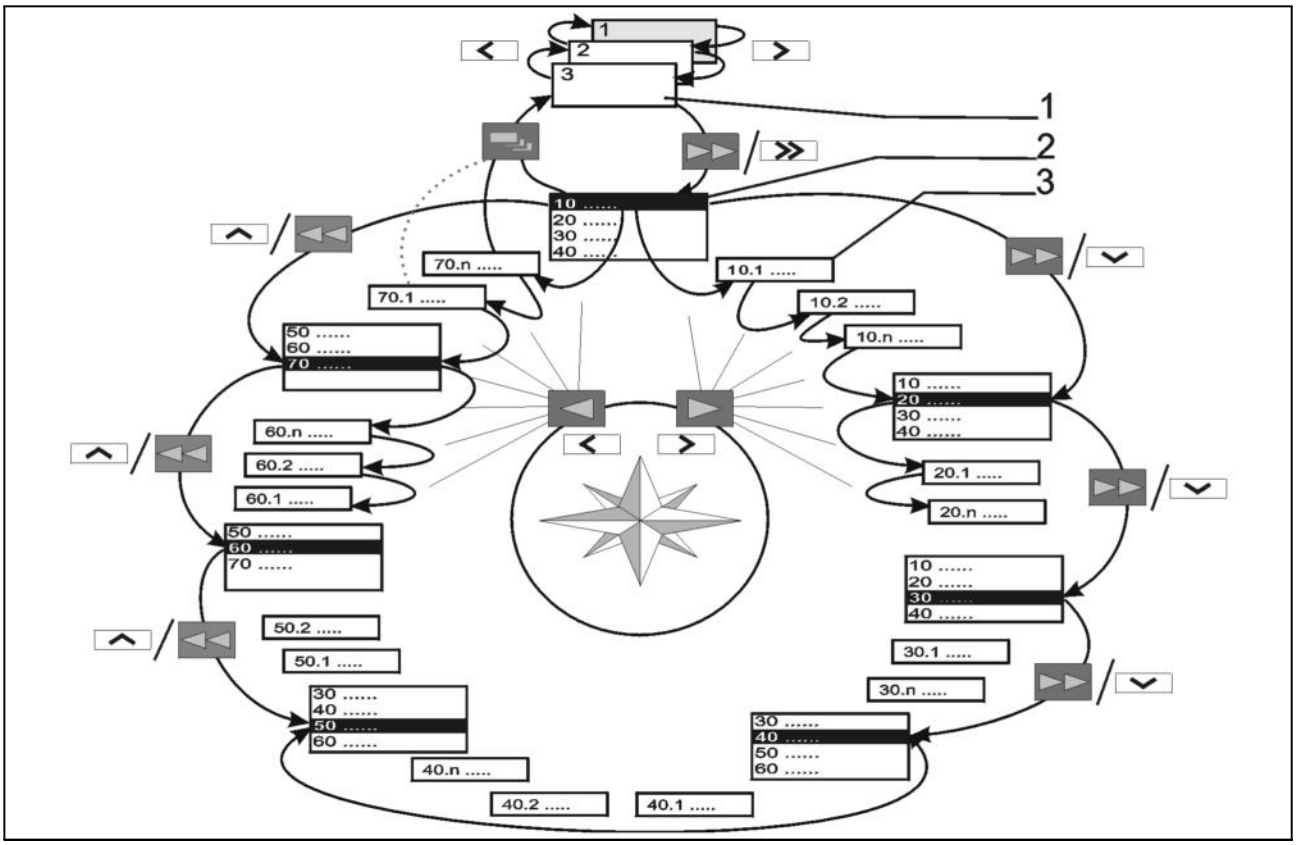
  ⟹ Lights up if the DC direct current in the intermediate circuit is more than about 50 V or more.

– Wait at least a minute once the LEDs (RUN) and (ALARM) have gone out. Only now you may start to test the voltage.

  Note: Work on electrical components must not be started unless the voltage was tested.

3 Display screens Operator panel

3.1 Structure of menu and data screens



The screen shows a combination of the different display screen structures, and which buttons are used to change from one display screen to another. In most cases the operating keys, as well as the program keys, can be used to switch to another display screen. See Chapter 1.

3 screen levels are defined:
Main screen (1) (grey):

Either an overview screen is displayed or, if there is a pending malfunction, the said malfunction is displayed. There may be several overview screens or several simultaneously pending malfunctions.

Menu overview (2) (black/white):

Data displays are grouped in menus. The corresponding menu can be selected from the menu overview.

Data screen (3) (white):

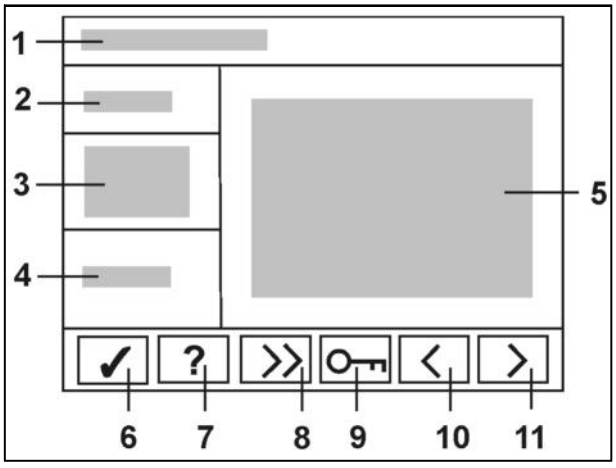
With data screens, actual values are displayed, settings can be altered or test functions can be activated.

3.2 List of menu and data screens

No.	Menu /data screens	Authorization	Page
10	**10 Production**		2/52
10.1	Bale groups - release	Alter without password	2/52
10.2	Take - off	Alter with password	2/53
10.4	Efficiency	No password	2/55
10.5	Scan after start?		2/55
30	**30 Information in general**		2/56
30.1	Machine information	No password	2/56
30.2	Overview take-off	No password	2/56
30.3	Overview hight position	No password	2/56
30.4	Overwiew bale profiling	No password	2/57
30.5	Overview	No password	2/57
30.6	Overview tower swivel	No password	2/58
30.7	Overview various	No password	2/58
30.8	Input overview	Is only displayed in extended operation.	2/59
30.9	Output overview	Is only displayed in extended operation.	2/59
31	**31 Information protocols / statistics**		2/60
31.1	Current warnings		2/60
31.2	Current maintenance warnings		2/60
31.3	Current malfunctions		2/60
31.4	Events registered		2/61
31.5	Events-Statistic machine		2/61
31.6	Delete protocols / statistics	Alter with password	2/61
40	**40 Set-up values operating**		2/62
40.1	Date / time	Change	2/62
40.2	Languages	Change with password	2/62
41	**41 Set-up values machine**		2/63
41.1	General settings	Alter with password	2/63
41.2	Tower swivel	Alter with password	2/64
41.3	Scanning / Bale profiling	Alter with password	2/65
41.3	Scanning / Bale profiling		2/66
41.4	Bale lay down	Alter with password	2/66
42	**42 Set-up values configuration**		2/67

No.	Menu /data screens	Authorization	Page
42.1	Configuration	Change with password	2/67
80	**80 Operation mode / tests**		2/67
80.1	Switch over operating modes	Change (maintenance)	2/67
81	**81 IO-Tests**		2/68
81.1	Inputs:	Alter with password (maintenance)	2/68
81.2	Outputs:	Alter with password (maintenance)	2/69
82	**82 Functional tests**		2/71
82.1	Function test travers drive	Alter with password (maintenance)	2/71
82.2	Function test swivel drive	Alter with password (maintenance)	2/71
82.3	Function test lift drive	Alter with password (maintenance)	2/71
82.4	Function test take-off roller	Alter with password (maintenance)	2/72
82.5	Light barrier	Alter with password (maintenance)	2/72
82.6	Function test fan	Alter with password (maintenance)	2/72
83	**83 System tests**		2/73
83.1	Key and LED testing	Change with password (maintenance)	2/73

3.3 Overview screen



Example of a message display

The display indicates one or several messages. If there are several messages pending simultaneously, these can be displayed individually.

1 Designation of the message.

2 Message code (e.g. error number).

3 Indicates graphically the general location of the event in the machine.

4 Shows the order and number of current messages.

Example 2/3: the second message of a total of three sequential messages is currently shown.

5 Shows the exact location of an event. The location on the machine is highlighted by a flashing rectangle.

6 Cancel key: to acknowledge the current malfunction.

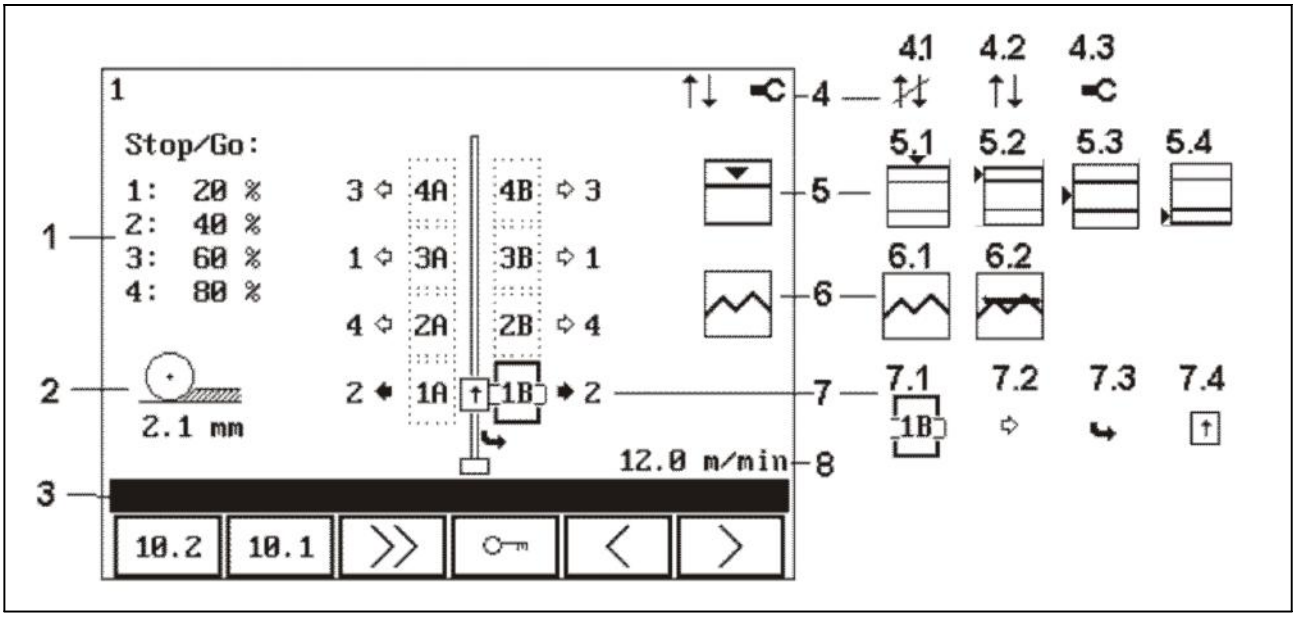
7 HELP key to show additional help for the displayed event.

8 MENU key: to display the menu overview.

9 PASSWORD key: to display the password entry.

10 SCREEN-key back Displays the previous message, if several events are reported.

11 SCREEN-key scroll forwards: Displays the next message, if several events are reported.



Overview display 1

If no malfunction is indicated, the following overview will always be displayed first.

1 Stop/Go ratio for all assortments configured (1...4).

2 Current take-off depth

3 Status line: Indicates the status of the machinery as a text message.

4 Network and maintenance symbols/icons

4.1 No network connection

4.2 Network connection Ok.

4.3 Maintenance warning

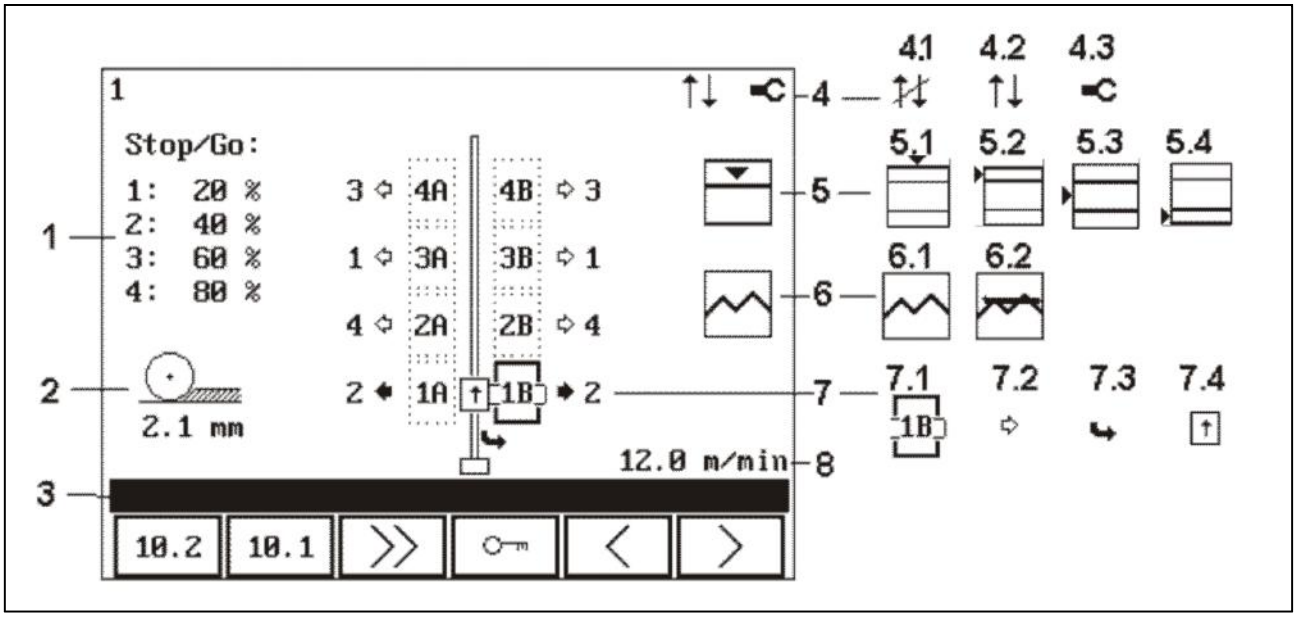
5 Status of take-off unit
Empty field = take-off not in process

5.1 Status of take-off process: scanning

5.2 Status of take-off process: moving in

5.3 Status of take-off process: normal stripping

5.4 Status of take-off process: moving out



6 Bale alignment.
Empty field = bale alignment is turned off.

6.1 Bales are aligned.

6.2 Bales are aligned.

7 Symbols which indicate the status of the rotating tower.

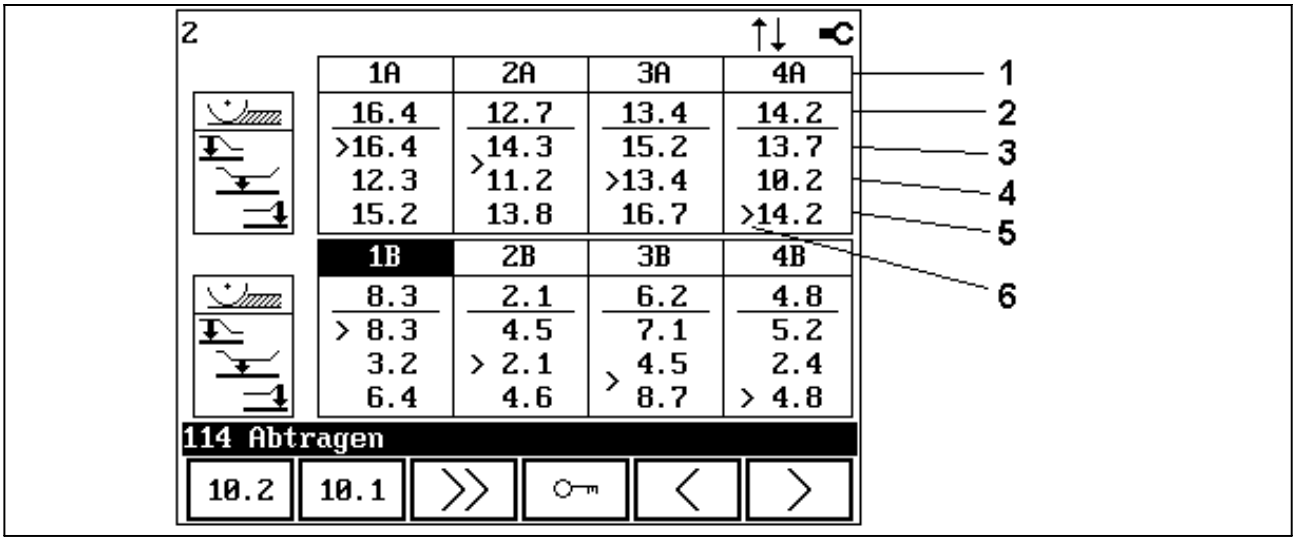
7.1 Configured group of bales is released.
A slashed group of bales indicates that this group of bales has been stripped completely.

7.2 Assortments assigned. Filled in arrow = material is requested.

7.3 UNIfloc delivers material.

7.4 Displays the direction of motion and rotation for the rotating tower.

8 Current driving speed.



Overview display 2

1 Group of bales (black background = currently is being stripped)

2 Current take-off depth in mm

3 Setpoint for "Initial take-off depth"

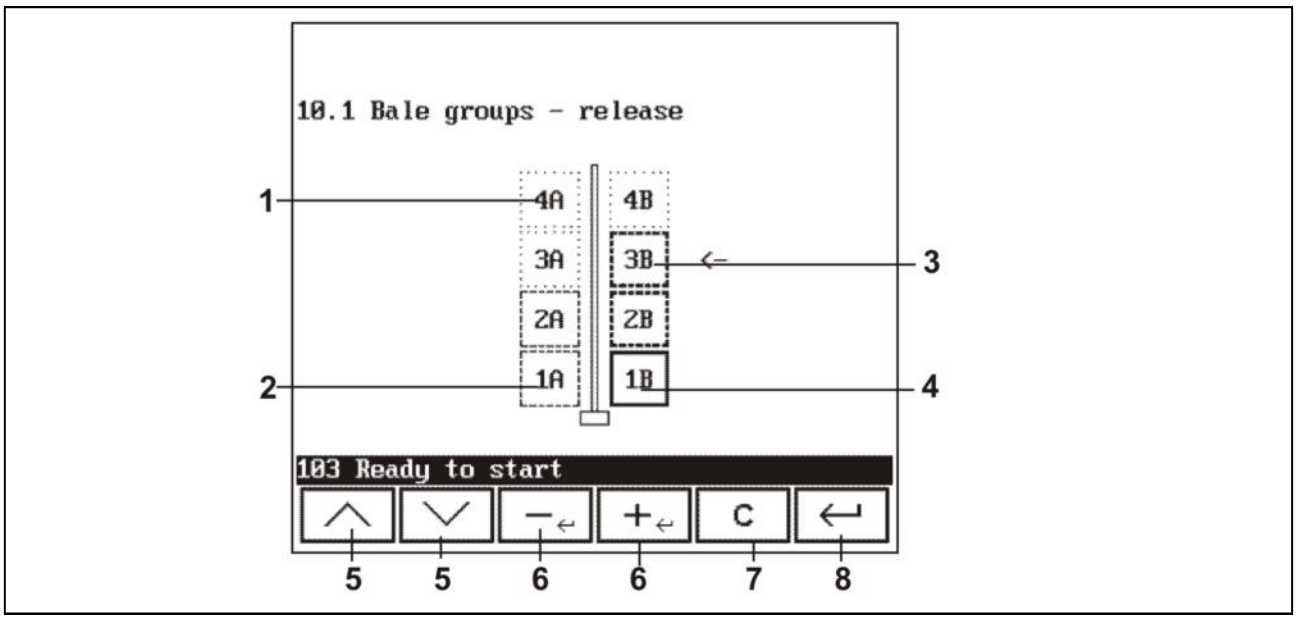
4 Setpoint for "Normal take-off depth"

5 Setpoint for "Final take-off depth"

6 The arrow to the left of the value indicates the current status of the take-off process.

3.4 Menu 10: "10 Production"

Contains all production data for the machine.



10.1 Bale groups - release

Enables adjustment or deletion of the release of the configured bale groups.

1 Bale group is blocked.

2 Bale group is earmarked to be blocked.

3 Bale group is earmarked to be released.

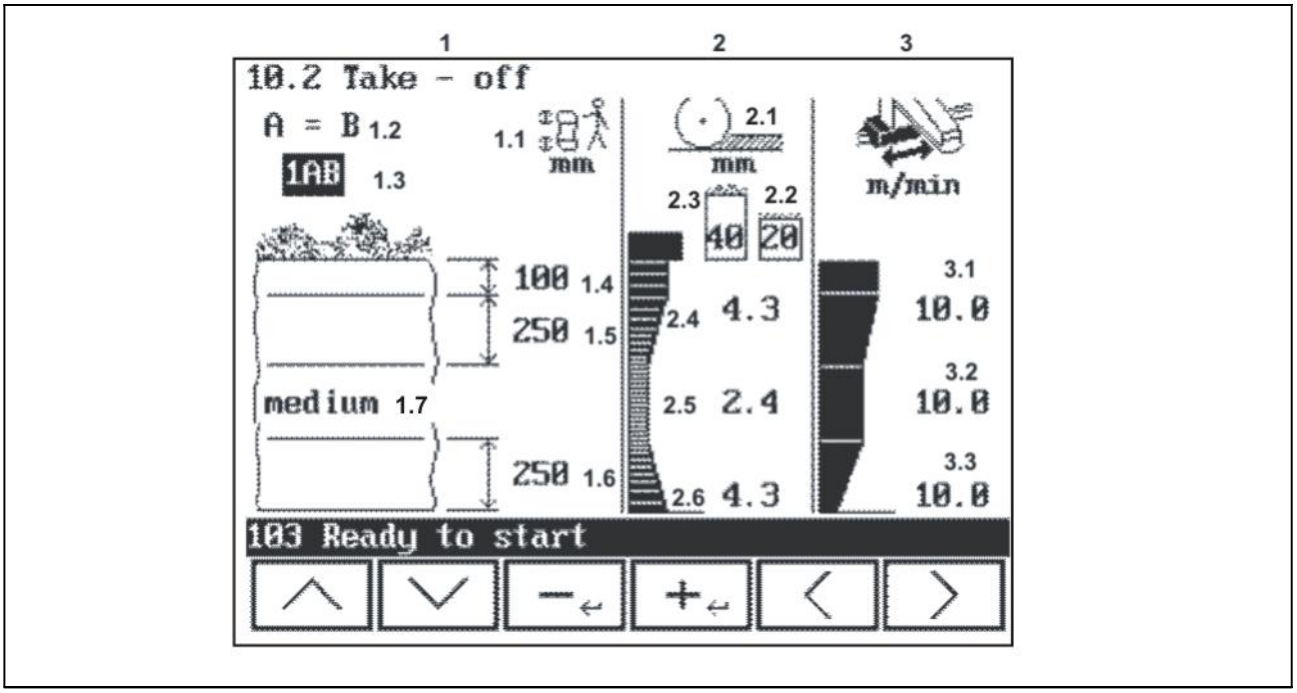
4 Bale group is released.

5 Button for selecting a bale group.

6 Button for setting or deleting a bale group.

7 Button for cancelling the entry.

8 Button for confirming the entry.



10.2 Take - off

- UNIfloc is delivering insufficient material, UNImix is running with no material, Page 6/7
- Set drive speed, Page 6/61

This data screen is divided into three sections (1, 2. and 3).

1 Bale groups and bale heights

1.1 Symbol for the run-in/run-out heights in mm.

1.2 Bale groups are arranged on both sides (A/B equal or unequal).

1.3 Here a bale group can be selected, for which the height specifications should be adjusted.

1.4 Stacking with loose material

1.5 Height for the run-in program

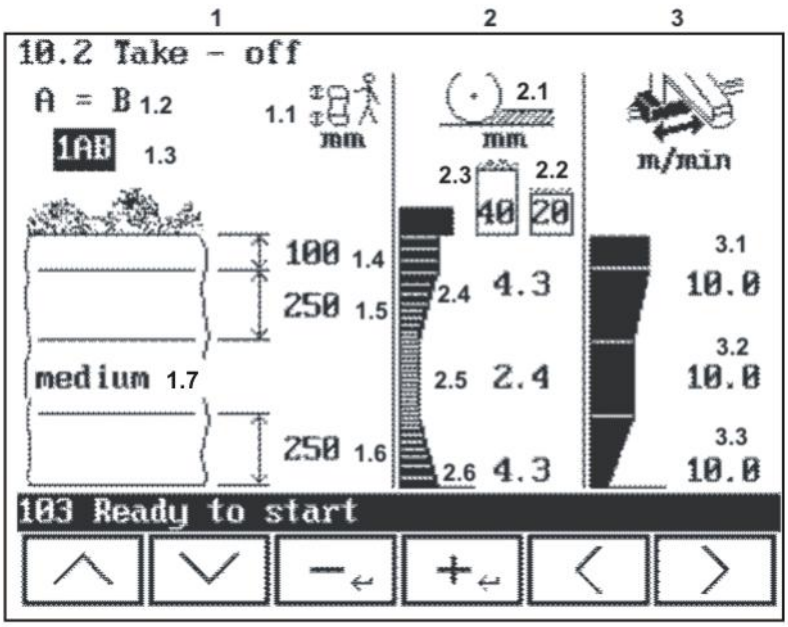
1.6 Height for the run-out program

1.7 Possible selection for the bale hardness

1 = hard / 5 = soft

2 General take-off depths for the selected bale group.

2.1 Symbol for take-off depths



2.2 Symbols for new bale group and bale group currently in progress

2.3 In the example, the value on the left for the first infeed after the first scan is 40.
The value on the right for the first infeed after a subsequent scan is 20.

2.4 Initial take-off depth

2.5 Normal take-off depth

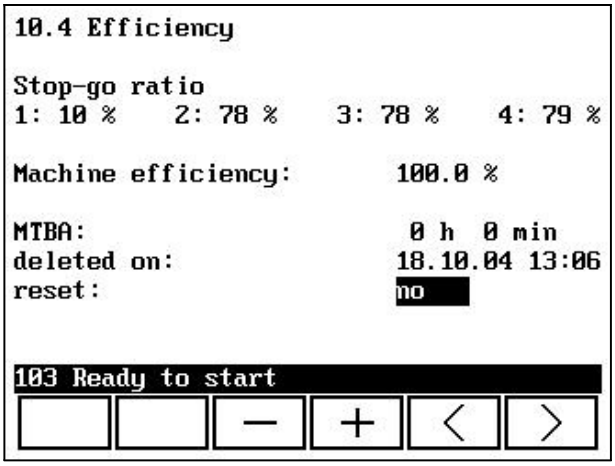
2.6 Final take-off depth

3 Drive speed
Analogous to the heights given in column (1), three different values are defined for the drive speed. In order that the loose layer at the start of the bales is taken off as quickly as possible, it is recommended to use a higher speed there. To prevent the bales being displaced at the end, a slower speed should be used there.
min. - max.: 6 - 16 m / min.

3.1 Drive speed for the start of the bales.

3.2 Normal drive speed.

3.3 Final drive speed.


10.4 Efficiency
Stop-go ratio
1: 10 % 2: 78 % 3: 78 % 4: 79 %
Machine efficiency: 100.0 %
MTBA: 0 h 0 min
deleted on: 18.10.04 13:06
reset: no
103 Ready to start

10.4 Efficiency

Stop-go ratio:

The stop/go ratio is calculated on a rolling basis for all configured assortments over a period of 15 minutes and is continuously displayed.

An ideal stop/go ratio is around 80%. If this value is constantly higher, the production needs to be increased. If a decreasing stop/go ratio is observed over a prolonged period, the production needs to be decreased.

Machine efficiency:

This ratio is calculated on a rolling basis over a period of 15 minutes and is continuously displayed.

MTBA:

The MTBA indicates the number of minutes the machine runs on average in production mode until it is stopped due to a malfunction. (MTBA = Mean Time Between Assistance)

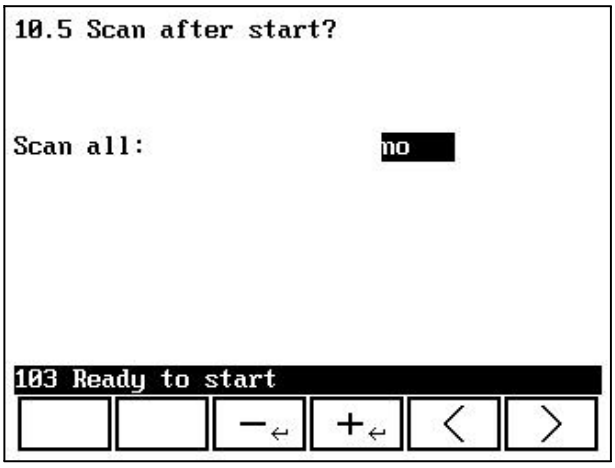
deleted on:

The date and time indicate the last time the MTBA log was deleted.

reset:

This deletes the MTBA log, i.e. values will be logged anew from this moment on.

Press the "PLUS button" to select "Yes" and confirm the entry by pressing the ENTER button.

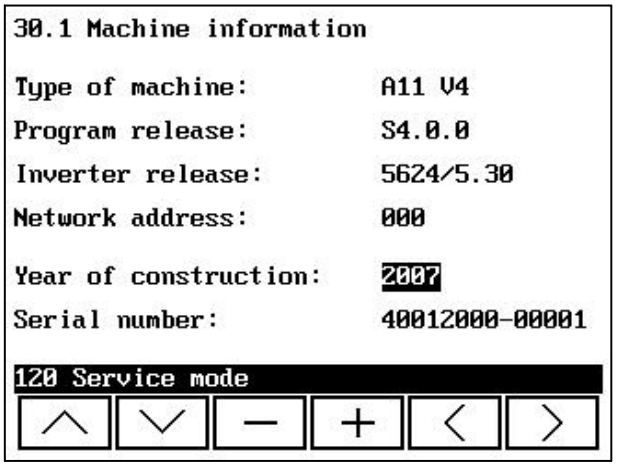


10.5 Scan after start?

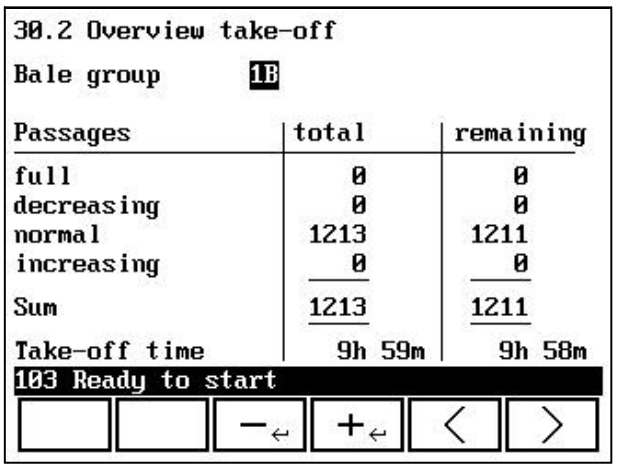
This query only arises if the machine has been run manually in the initial position “P0” and is restarted, or after a long idle period, since the bales have possibly become higher.

3.5 Menu 30: "30 Information in general"

Contains information relevant to machine type, software release, and other actual values.



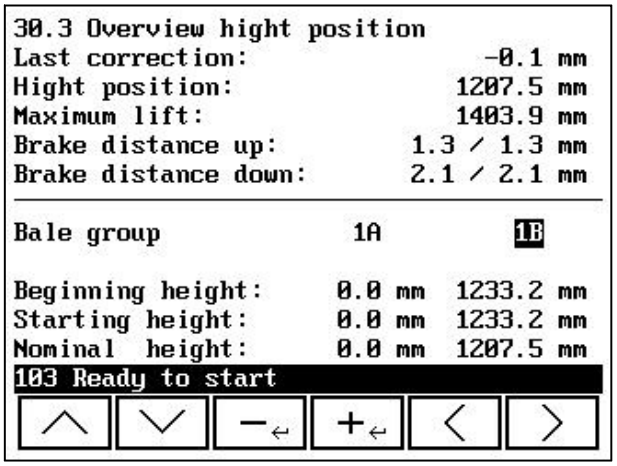
30.1 Machine information
Displays machine information.



30.2 Overview take-off
Bale group
Selection of the bale group for which the number of passes and execution time is to be displayed.

Passages
Displays the total number and remaining number of passes for the individual phases of the take-off process currently in progress.

Take-off time
Estimated execution time for stripping all the bales.


30.3 Overview hight position
Last correction: -0.1 mm
Hight position: 1207.5 mm
Maximum lift: 1403.9 mm
Brake distance up: 1.3 / 1.3 mm
Brake distance down: 2.1 / 2.1 mm
Bale group 1A 1B
Beginning height: 0.0 mm 1233.2 mm
Starting height: 0.0 mm 1233.2 mm
Nominal height: 0.0 mm 1207.5 mm
103 Ready to start

30.3 Overview hight position
Last correction:
Correction value once the upper limit switch is reached. Zero point deviation. Only visible with extended operation.

Hight position:
Current height of take-off unit

Maximum lift:
Maximum possible height.

Stopping distance up:
Current braking distance for upward motion.

Stopping distance down:
Current braking distance for downward motion.

Bale group

Selection of a pair of bale groups for displaying the following group-specific parameters.

Beginning height:

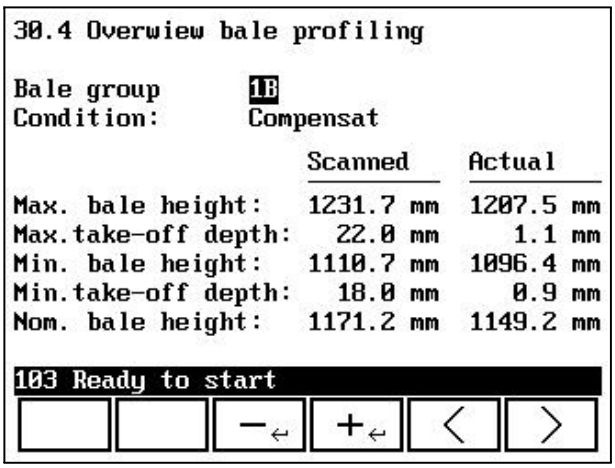
Target height after first scan

Starting height:

Target height after final scan.

Nominal height:

Current target value for height


30.4 Overwiew bale profiling
Bale group 1B
Condition: Compensat
Scanned Actual
Max. bale height: 1231.7 mm 1207.5 mm
Max.take-off depth: 22.0 mm 1.1 mm
Min. bale height: 1110.7 mm 1096.4 mm
Min.take-off depth: 18.0 mm 0.9 mm
Nom. bale height: 1171.2 mm 1149.2 mm
103 Ready to start

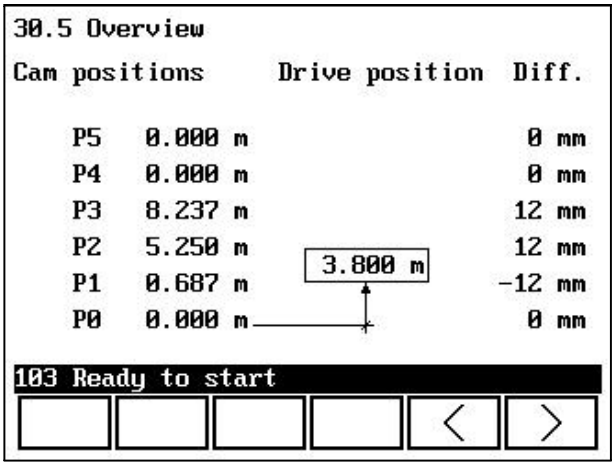
30.4 Overwiew bale profiling

Bale group

Selection of the bale group to be displayed

Condition:

The momentary "Bale profiling" state is displayed, according to the current phase of the UNIfloc.


30.5 Overview
Cam positions Drive position Diff.
P5 0.000 m 0 mm
P4 0.000 m 0 mm
P3 8.237 m 12 mm
P2 5.250 m 12 mm
P1 0.687 m -12 mm
P0 0.000 m 0 mm
3.800 m
103 Ready to start

30.5 Overview

Cam positions

Distances between the required cams and "P0" for all the programmed bale groups.

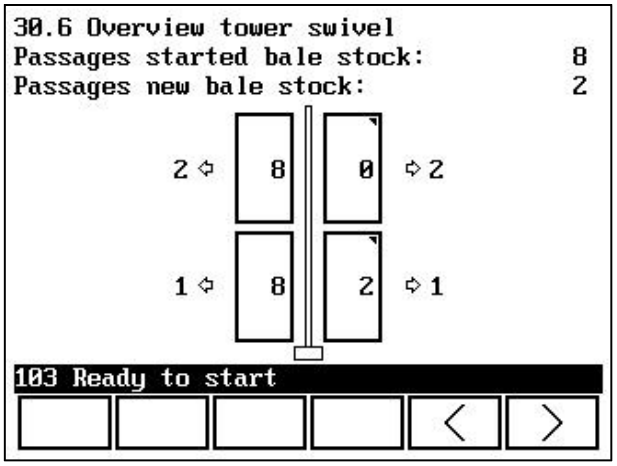
Drive position

Provides information on the travel positions of the machine.

Current distance from the machine to the P0 position. The display field always indicates the position of the machine.

Diff.

Difference between current cam position and stored cam position. Is only displayed in extended operation.



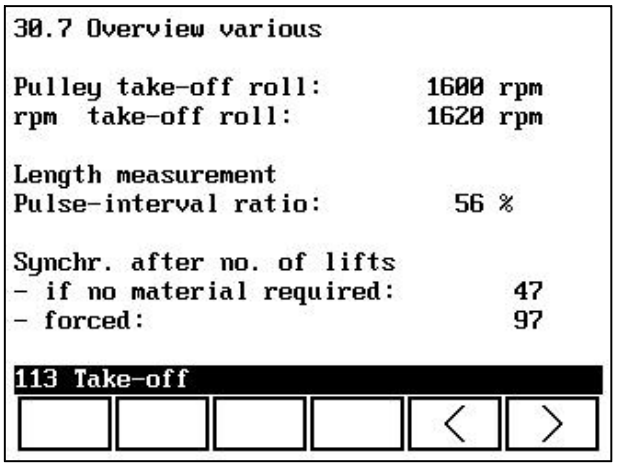
30.6 Overview tower swivel

This screen is just for information

The number in the bales is the counter which always counts down to zero and then changes direction again, until the run-in is complete.

A triangle in the upper right corner of a bale indicates the new bale feed.

The program for the rotation of the rotating tower is described in data screen 41.2.



30.7 Overview various

Pulley take-off roll:

The speed of the take-off roller is detected by the sensor and the target speed is displayed accordingly.

rpm take-off roll:

Momentary speed of the take-off roll.

Length measurement

Pulse duration as a percentage of the pass duration for the length measurement.

Example 48% displayed: 48% pulse duration and 52% pause duration.

Synchr. after no. of lifts

These counters are reduced by "1" with every lifting motion.

The uppermost (zero) position of the take-off unit is reset once "0" has been reached.

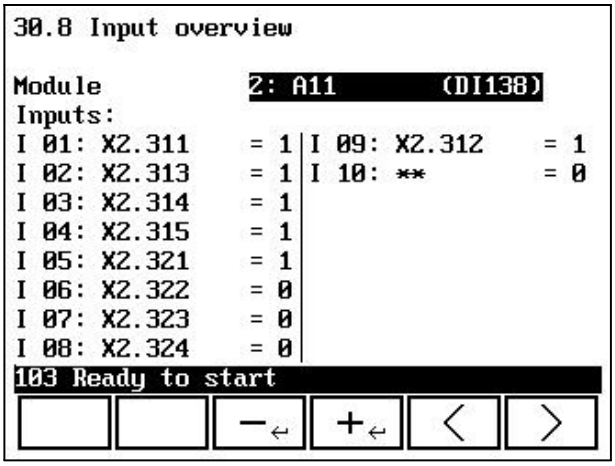
The uppermost (zero) position of the take-off unit is reset once "0" has been reached.

- if no material required:

Zero calibration can be carried out when no material is requested.

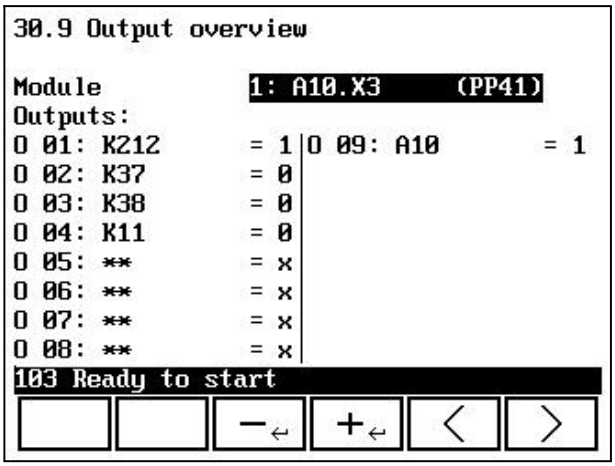
- forced:

If the counter has run down, a zero calibration needs to be carried out.



30.8 Input overview

This screen is just for information. A “0” entry means no signal. A “1” entry means 24V at the input.

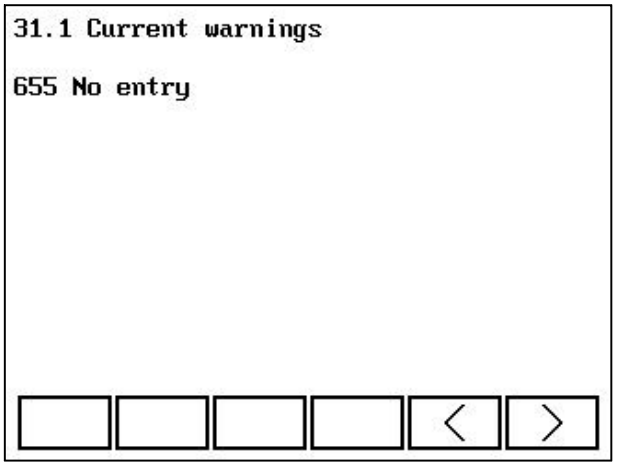

30.9 Output overview
Module 1: A10.X3 (PP41)
Outputs:
O 01: K212 = 1
O 02: K37 = 0
O 03: K38 = 0
O 04: K11 = 0
O 05: ** = x
O 06: ** = x
O 07: ** = x
O 08: ** = x
O 09: A10 = 1
103 Ready to start

30.9 Output overview

This screen is just for information. A “0” entry means the output is not set. A “1” entry means 24V at the output.

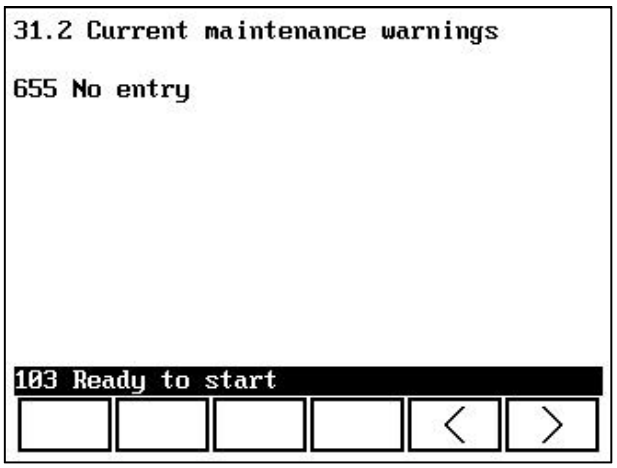
3.6 Menu 31: "31 Information protocols / statistics"

Contains protocols and statistics



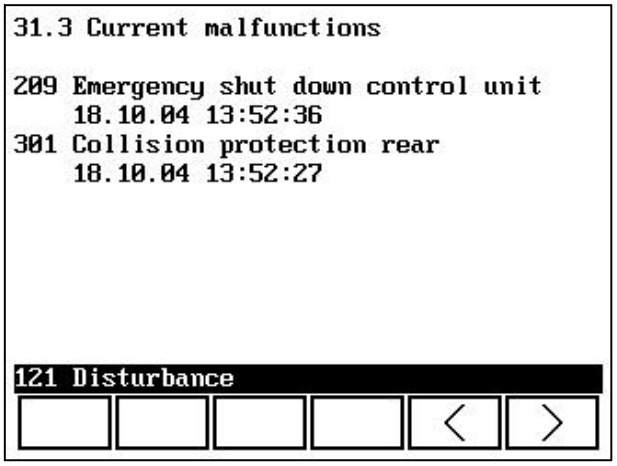
31.1 Current warnings

All currently pending warnings are displayed chronologically with code, message text (brief summary) and date/time of occurrence.



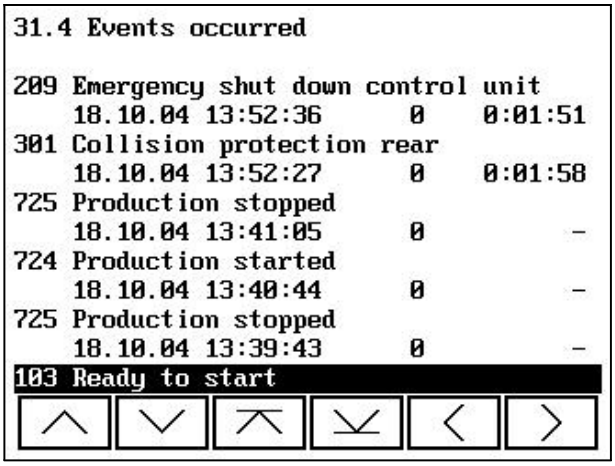
31.2 Current maintenance warnings

A maximum of 100 pending maintenance warnings are displayed chronologically with code, message text (brief summary) and date/time of occurrence. The records can be deleted in data screen 31.7.



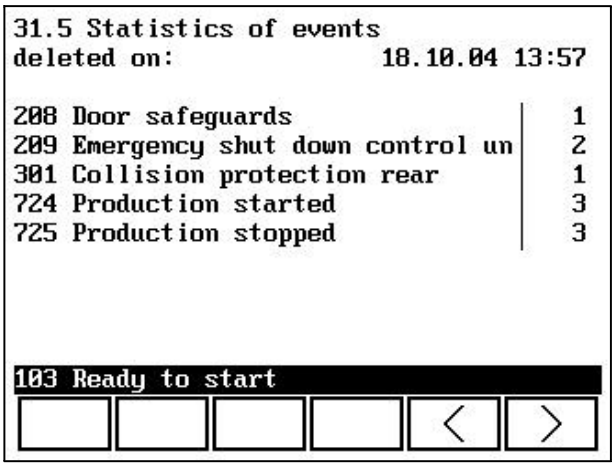
31.3 Current malfunctions

A maximum of 100 currently pending malfunctions are displayed chronologically with code, text message (brief summary) and date/time of occurrence.



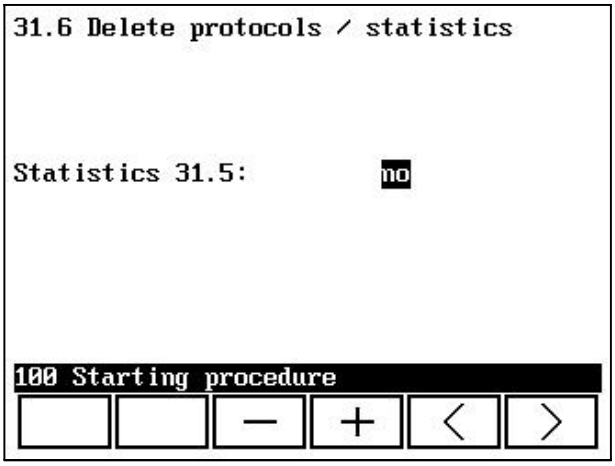
31.4 Events registered

Log book The last events (max. 100), such as malfunctions, warnings, maintenance warnings, messages, etc., with code, message text (brief summary), and date/time of occurrence and duration (h:m:s) are displayed in chronological order.


31.5 Statistics of events
deleted on: 18.10.04 13:57
208 Door safeguards 1
209 Emergency shut down control un 2
301 Collision protection rear 1
724 Production started 3
725 Production stopped 3
103 Ready to start

31.5 Events-Statistic machine

List of most important events (alarms and messages) and information on how often these events occurred. Only those events that have occurred at least once since the last deletion are displayed. The entries in the event counters can be deleted.

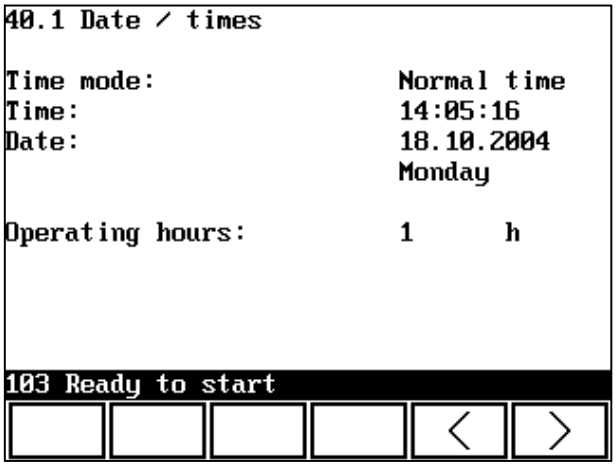


31.6 Delete protocols / statistics

Enables the event statistics listed in data screen 31.5 to be deleted The date and time since the deletion is entered. The date and time correspond to the starting date and starting time for the new data log.

3.7 Menu 40: "40 Set-up values operating"

General settings, such as time, units, and languages.



40.1 Date / time

Standard time/summer time changeover , Page 2/41

Setting for date / time, operating hours counter and the time basis for the rolling machine efficiency.

Time in:

Switching between Summer time and Winter time

Time:

Hours/minutes entry

Date:

Day/month/year entry

Operating hours counter:

Setting the CPU operating hours counter, e.g. after exchanging a CPU or loss of data.

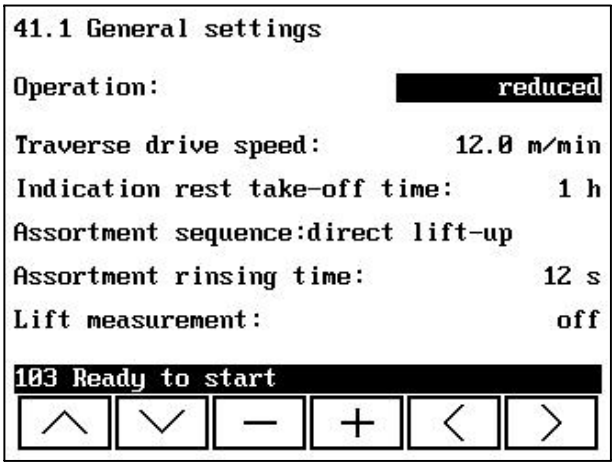
40.2 Languages

Changing the language, Page 2/33

The languages required are selected with "Yes". These can then be selected with the LANGUAGE SELECTION key. English and German cannot be deactivated.

3.8 Menu 41: "41 Set-up values machine"

Configuring machine parameters.



41.1 General settings

Operation:

reduced

Changes not possible for all program options. The options “Simplified operation”, “Rotating tower rotation for all cams” and “Take-off optimisation” are masked out.

extended

Changes possible for all program options. Additional values are available for making changes in the data screens.

Indication rest take-off time:

On reaching the preset time, the signal lamps start flashing to indicate that the take-off process for the bales will be finished soon.

If "0" is entered, signalling is switched off.

Default : 1.0 h

min. - max.: 0 - 5.0 h

Assortment sequence:

This programming option is only active if more than one assortment is being processed. The programming option is not recommended for bale lay-downs where the individual assortments have lengths exceeding 25 m. The downstream machine will be overfilled. Select setting "Direct take-off".

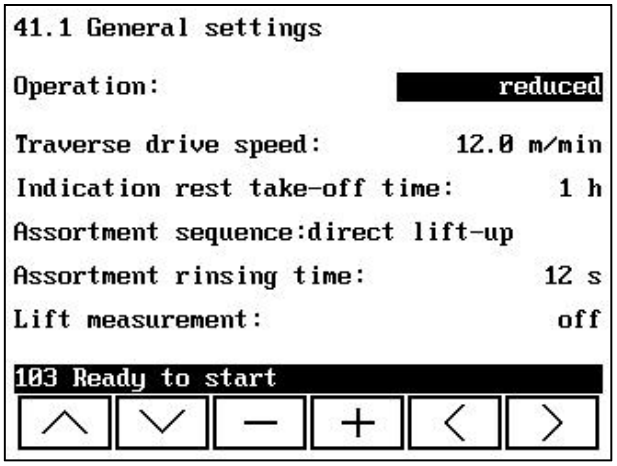
direct lift-up

If no more material is requested for an assortment, the take-off unit lifts approx. 15 cm off the bales. This position is stored in the program.

If material is requested for another assortment, it will be delivered immediately. The machine will continue to take off material immediately if, while moving to the other assortment, the current assortment requests material again.

In the data screen, the take-off optimisation is configured with "NO". Beyond the point where the take-off unit was raised, twice the take-off depth has to be applied at the next pass. In order that no problems occur during take-off in this area, this process is performed at the previous height again.

If the take-off optimisation is configured with "Yes" in the data screen, the drive speed will be halved in the area having twice the take-off depth.



If no assortment requests new material, the UNIfloc comes to a standstill.

finish take-off

If material is requested for a different assortment, the take-off unit does not lift off. It completes the take-off process for the material of this assortment before moving to the other assortment.

Assortment rinsing time:

Before the take-off process for the next assortment commences, the material of the previous assortment must be suctioned from the pipes. The flushing time depends on the length of the pipework. The changeover flap is activated after the preset delay time.

Default : 12 sec

min. - max.: 1 - 20 sec

Easy operating:

With Simplified operation set to “off”, the Version 3 data screens are displayed.

Tower swivel at all cams:

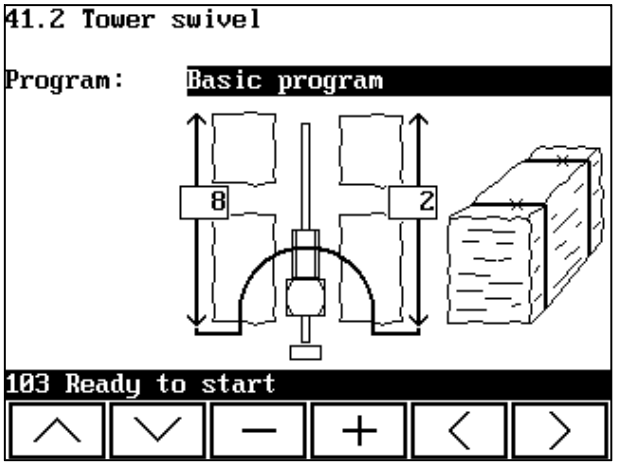
If set to “off”, the rotating tower can only be rotated to position “P0”.

Take-off optimization:

Configuration "Yes": From the point at which the take-off unit was lifted off, the drive speed is halved in this area, where twice the take-off depth is applied.

Lift measurement:

The lift measurement can be switched on or off. If "on", the START button on the right can be used to initiate lift measurement.



41.2 Tower swivel

UNIfloc is delivering insufficient material, UNImix is running with no material, Page 6/7

Basic program

If the numbers in the fields are changed, this creates a separate program. In the black bar where the program is indicated, a white line appears.

The cotton bale is always displayed on the side where the new bale feed has been released. Whenever a bale group is released, the basic program ensures that the take-off process alternates between the feed already in progress and the new feed. The basic program also ensures that 2 take-off passes occur for the new bale group and 8 take-

off passes occur for the bale group already in progress.

In multi-assortment operation, the previously released group of bales on one side is accepted as the new lay-down.

This alternating take-off process is carried out until the heights entered in data screen 10.2 have been attained.

Swivel at bale stock end

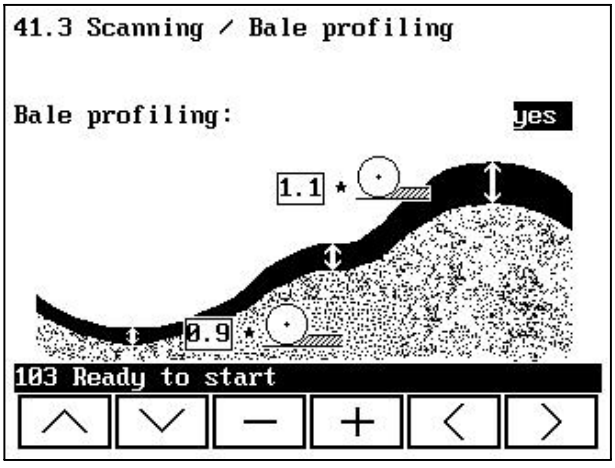
The rotating tower turns if the take-off process for one bale feed has been completed and the new feed has been released. If more than one assortment is being processed, material will only be stripped from those assortments that have been released and those that request more material.

No program

At the end of a bale, the rotating tower has to be turned via the keyboard controls.

Swivel always at P0

If the bale groups have been released and material has been requested, the rotating tower always turns in the P0 position. Two passes are always used for a new feed and eight passes for an existing feed during the take-off process.



41.3 Scanning / Bale profiling

- UNIfloc is delivering insufficient material, UNImix is running with no material, Page 6/7
- Turning on "Bale profiling", Page 2/30
- Turning off "Bale profiling", Page 2/30

Bale profiling:

Bale profiling Yes / No.

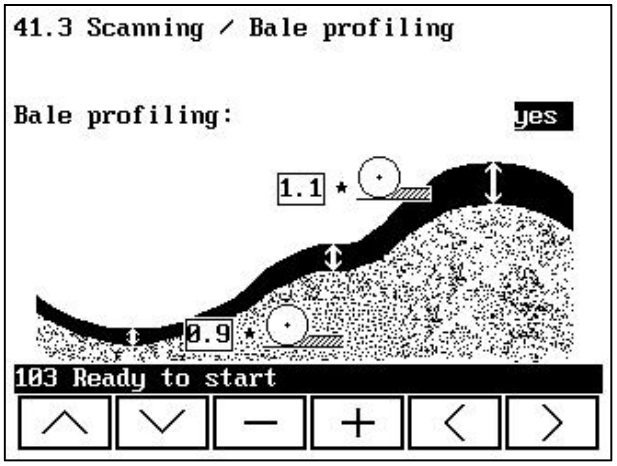
If “Yes” is selected, the highest point and lowest point factors will be unmasked.

Factor highest point:

Can only be altered in extended operation. (Data screen 41.1)

Adjustment can be made using 1/10 increments. The larger the difference between the "highest point" and "lowest point", the faster the bale surface will be evened out. If working with the factor 1.1, the highest points will be stripped with a depth of 1.1 x (the take-off depth).

Default : 1.1
min. - max.: 1.0 - 3.0



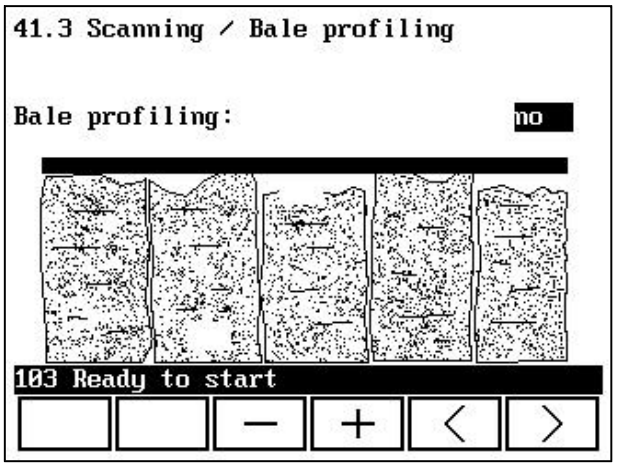
Factor lowest point:

Can only be altered in extended operation. (Data screen 41.1)

Adjustment can be made using 1/10 increments. The larger the difference between the "highest point" and "lowest point", the faster the bale surface will be evened out. If working with the factor 0.9, the lowest points will be stripped with a depth of 0.9 x (the take-off depth).

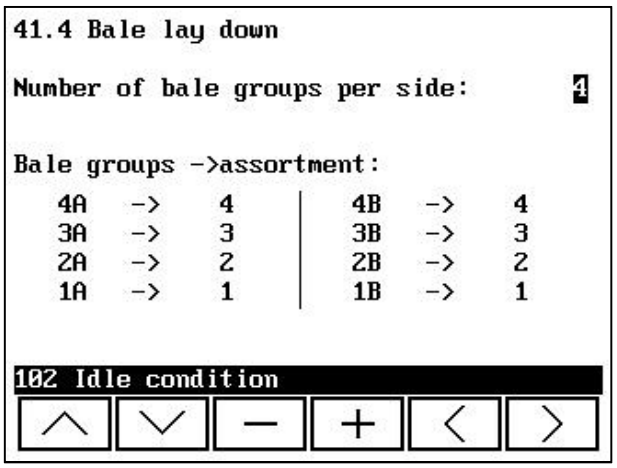
Default : 0.9

min. - max.: 0.5 - 1.0



41.3 Scanning / Bale profiling

If “No” is selected, the bale profiling options are masked out.


41.4 Bale lay down
Number of bale groups per side: 4
Bale groups ->assortment:
4A -> 4 | 4B -> 4
3A -> 3 | 3B -> 3
2A -> 2 | 2B -> 2
1A -> 1 | 1B -> 1
102 Idle condition

41.4 Bale lay down

Number of bale groups per side:

Number of bale groups on each side.

Default : 1

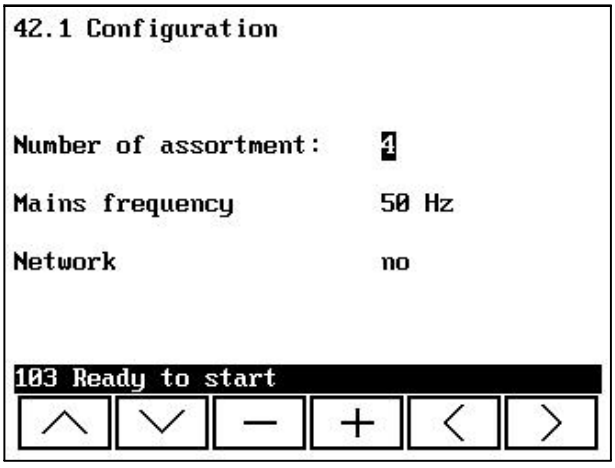
min. - max.: 1 - 4

Bale groups ->assortment:

Only for multi-assortment operation (number of assortments > 1).

Assortment assignment for the configured bale groups.

3.9 Menu 42: "42 Set-up values configuration"



42.1 Configuration

Number of assortment:
Default : 1
min. - max.: 1 - 4

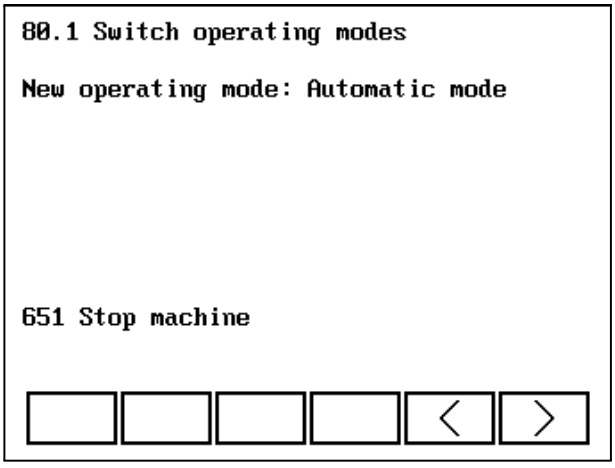
Mains frequency

Entry, whether the network works with 50 Hz or 60 Hz.

Network:
Network available yes / no.

3.10 Menu 80: "80 Operation mode / tests"

Operating mode switch for maintenance functions.



80.1 Switch over operating modes

Selection of operating mode We distinguish between "Automatic mode" and "Service mode". The machine can be started for production in "Automatic mode". The "Service mode" is used for maintenance and machine testing purposes. You will have to select the "Service mode" to access the other data screens for maintenance and tests.

Operating mode:

You can select one of the following operating modes:

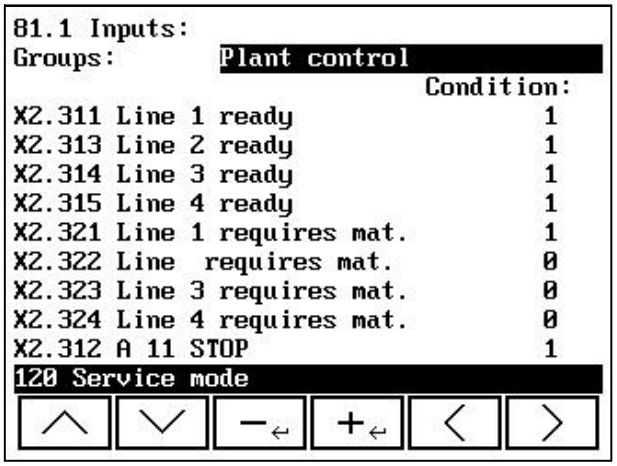
Selection

Service mode : Allows you to access all the functions in the test menus.

Manual mode : Allows you to use manual functions (if available).

Automatic mode: This allows just a few functions which eliminates potential risks in the automatic mode.

3.11 Menu 81: "81 IO-Tests"


81.1 Inputs:
Groups: Plant control
Condition:
X2.311 Line 1 ready 1
X2.313 Line 2 ready 1
X2.314 Line 3 ready 1
X2.315 Line 4 ready 1
X2.321 Line 1 requires mat. 1
X2.322 Line requires mat. 0
X2.323 Line 3 requires mat. 0
X2.324 Line 4 requires mat. 0
X2.312 A 11 STOP 1
120 Service mode

81.1 Inputs:

Adjusting the light barriers on the take-off unit, Page 6/25

The inputs are divided into groups.

Plant control

Line 1 ready

Line 2 ready

Line 3 ready

Line 4 ready

Line 1 requests material

Line 2 requests material

Line 3 requests material

Line requests material

A 11 STOP

Operating unit

Safety circuit (K213)

EMERGENCY STOP button (S 10)

Motor protection switch (Q11)

Tower in generel

Door monitoring (S55, S56, S57)

Motor protection switch test (Q4...Q41)

Malfunction with motor protection switch (Q4...Q41)

Safety circuit 1 (K214)

Safety circuit 2 (K215)

Tower oper./shutdown sens.

Lift motion button for take-off unit (S1)),

START button for take-off unit (S2)

EMERGENCY STOP button for take-off unit (S 3)

Alarm shut-down sensor (K572)

Hardware malfunction shut-down sensor (K599)

Traverse drive

Path measurement proximity switch (B14)

Front collision safeguard (B1, B2, B3, B4)

Rear collision safeguard (B6, B7, B8, B9)

Proximity switch P0 (B5)

Proximity switches P1 to P5 (B15)

Swivel drive

0° position on left (B40)

180° position (B41)

Advance signal (B39)

Lift drive

Lift drive proximity switch (M5, B55)

Top limit switch (S51)

Bottom limit switch (S52)

Thermal protector for lift drive (M5, S5)

Take-off unit

Take-off roll proximity switch (B44)

Swivel flap on left: Electric cylinder retracted (S81)

Swivel flap on right: Electric cylinder extended (S82)

Foreign matter monitoring (S33)

Take-off unit overload (S59, S60)

Connection monitoring (K252)

Collision safeguard for take-off unit on left (B10, B11, B30, B31)

Collision safeguard for take-off unit on right (B12, B13, B32, B33)

Thermal protector for take-off roller (M4, S4)

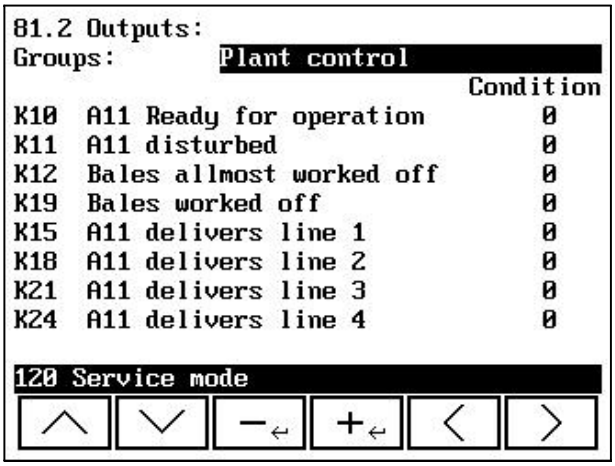
Light barrier

Barrier 1 (B61)

Barrier 1 (B62)

Barrier 1 (B63)

Barrier 1 (B64)


81.2 Outputs:
Groups: Plant control
Condition
K10 A11 Ready for operation 0
K11 A11 disturbed 0
K12 Bales allmost worked off 0
K19 Bales worked off 0
K15 A11 delivers line 1 0
K18 A11 delivers line 2 0
K21 A11 delivers line 3 0
K24 A11 delivers line 4 0
120 Service mode

81.2 Outputs:

The outputs have been divided into groups.

Plant control

A 11 is ready to operate (K10)

A11 is defective (K11)

Bales are almost stripped (K12)

Bales are stripped (K 19)

A 11 supplies Line 1 (K15)

A 11 supplies Line 2 (K18)

A 11 supplies Line 3 (K21)

A 11 supplies Line 4 (K24)

Operating unit

Self-monitoring (K212)

Side position (K37)

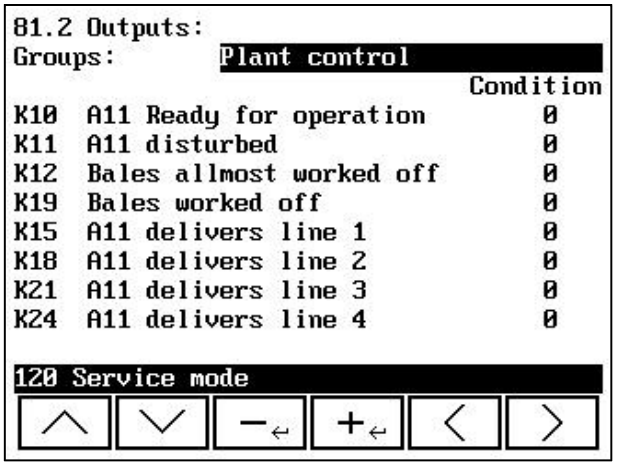
Rinsing time (K38)

Tower in generel

Signal lamp (H1, H5)

Stop motion sensor test (K570)

Self-monitoring (K300)


81.2 Outputs:
Groups: Plant control
Condition
K10 A11 Ready for operation 0
K11 A11 disturbed 0
K12 Bales allmost worked off 0
K19 Bales worked off 0
K15 A11 delivers line 1 0
K18 A11 delivers line 2 0
K21 A11 delivers line 3 0
K24 A11 delivers line 4 0
120 Service mode

Fans (K61, K71)

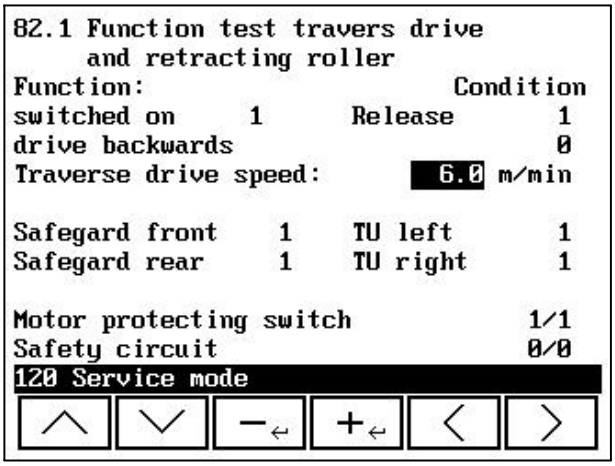
Traverse drive
Converter on (K45)
Converter release (K450)

Swivel drive
on right (K410)
on left (K411)
slow (K412)
fast (K413)
2-phase (K423)
brakes (K416)

Lift drive
up (K51)
down (K52)
slow (K53)
fast (K54)
brakes (K316)

Take-off unit
Extend swiveling flap on left (K470)
Retract swiveling flap on right (K480)
Retaining roller on right (K46)
Retaining roller (K47)
Take-off roller on right (K41)
Take-off roller on left (K42)
Take-off roller triangle (K43)
Take-off roller star (K44)

3.12 Menu 82: "82 Functional tests"


82.1 Function test travers drive
and retracting roller
Function: Condition
switched on 1 Release 1
drive backwards 0
Traverse drive speed: 6.0 m/min
Safegard front 1 TU left 1
Safegard rear 1 TU right 1
Motor protecting switch 1/1
Safety circuit 0/0
120 Service mode

82.1 Function test travers drive

The drive and the retaining rollers can be put into operation here.

switched on

Must be set to 1.

Release

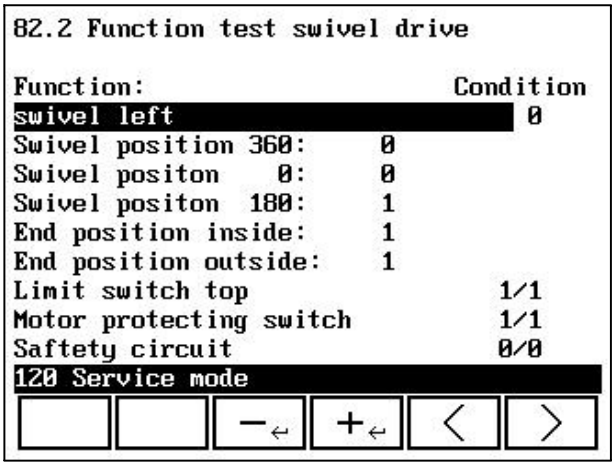
Must be set to 1.

Select “move forward” or “move back”.

Enter a drive speed.

Use the START button to switch on the drive.

min. - max.: 6 - 16 m / min.



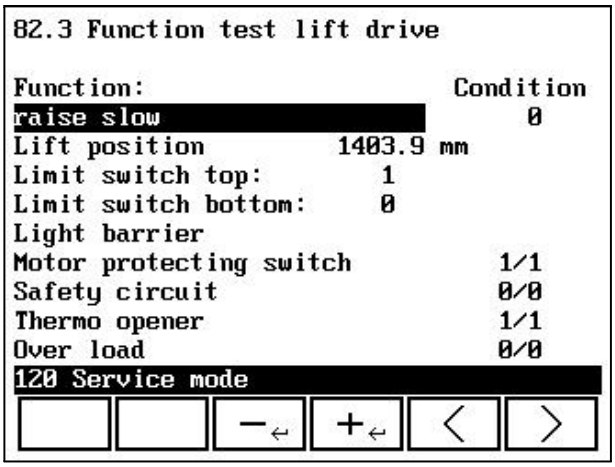
82.2 Function test swivel drive

swivel left

swivel right

braking

Select the desired type of motion and execute using the START button.



82.3 Function test lift drive

raise slow

Use the Plus/Enter button on the first line to select the desired type of lifting motion.

Use the START button to initiate the motion.

Use the STOP button to stop the motion at any time.

raise fast

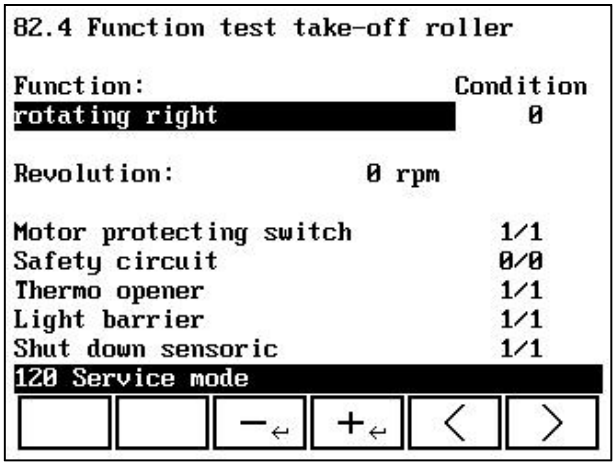
lower slow

lower fast

Release brake

Touching the START button causes the brakes to briefly be released before reengaging.

The take-off unit can thereby be lowered in small steps, either onto the bale or onto another support.

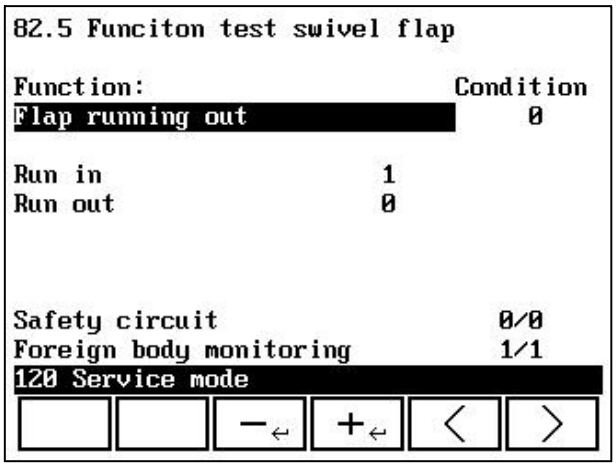


82.4 Function test take-off roller

Shut down sensoric

Use the Plus/Enter button on the first line to set the desired function.

Use the START button to switch on the take-off roller.

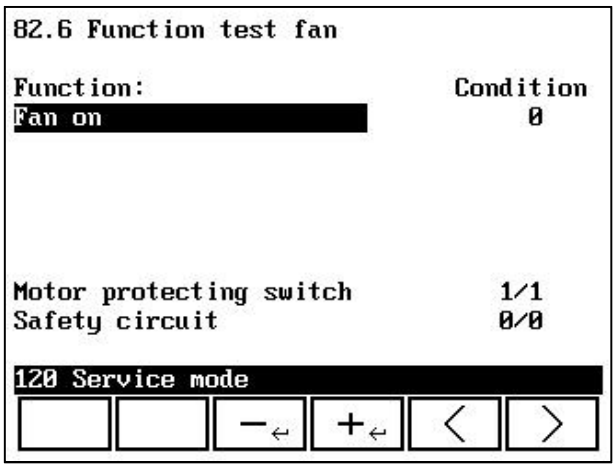


82.5 Light barrier

Flap run in

Use the Plus/Enter button on the first line to set the desired motion.

Use the START button to initiate the motion.



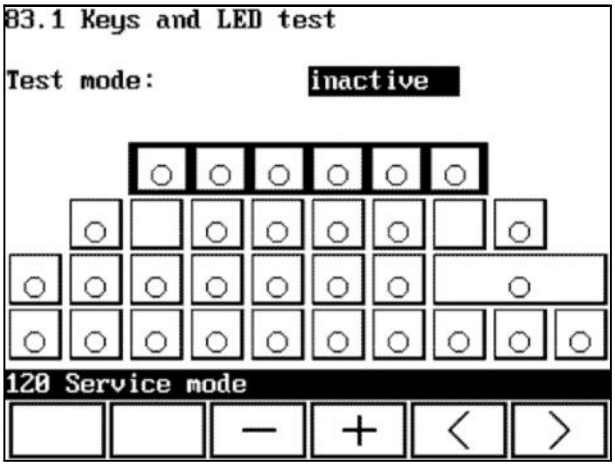
82.6 Function test fan

Fan on

Use the Plus/Enter button to select "ON" or "OFF".

Use the START button to switch on the fan.

3.13 Menu 83: "83 System tests"



83.1 Key and LED testing

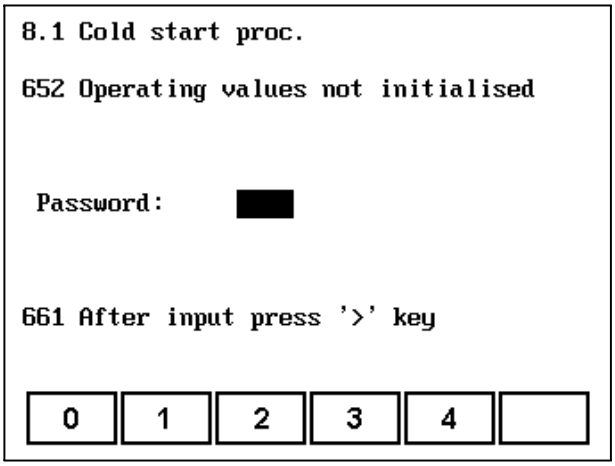
On this data screen you can test the keys and LEDs.

Test mode:

If the test mode is set to "active", all the LEDs on the operator panel light up.

In addition, the keys on the operator panel can be tested. When a key is actuated, the appropriate test display must react.

3.14 System functions



8.1 Cold start procedure

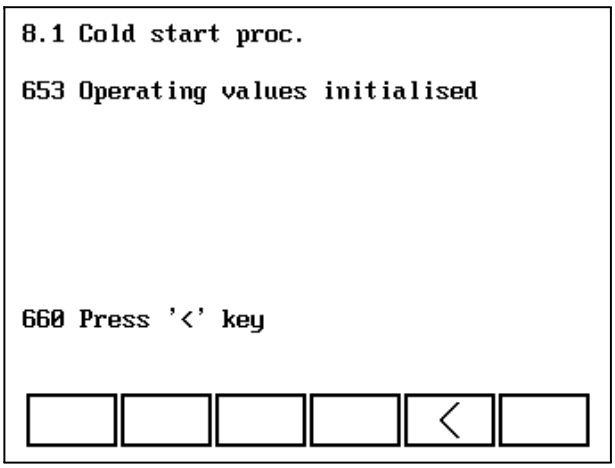
This screen appears on first commissioning, possibly following a software upgrade, if the data in the memory were erased or if an intentional cold-start was initiated. First enter the password. You will then be guided through all the necessary data screens in which settings must be defined or checked,.

Password:

Enter the corresponding 4-digit password using the soft keys 0-4.

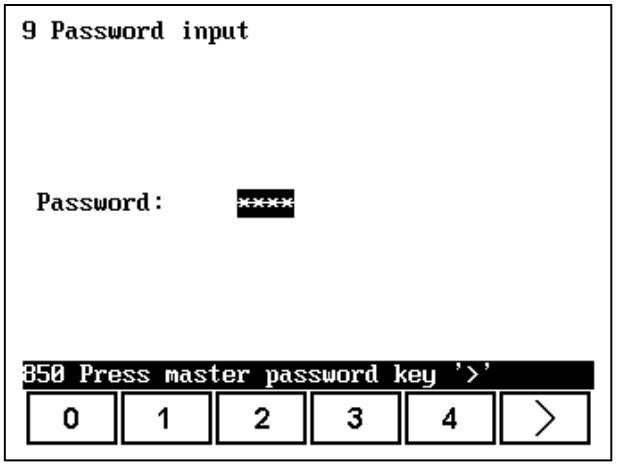
Then press the ">" key to go to the next screen.

Note: Press the "C" key to delete the password code and re-enter it.



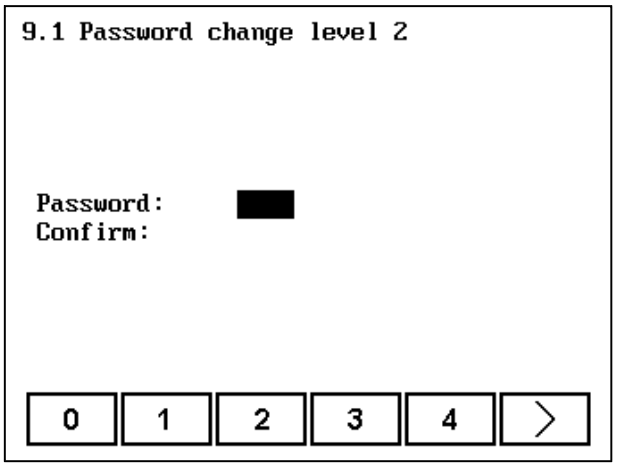
8.1 Cold start procedure

This screen appears at the end of the cold start process, after you have been taken through all the settings. Follow the instructions in the lowermost line to be able to start the machine afterwards.



9 Password input

Certain entries and tests are possible in data screens only if the password has been entered previously. (Softkey "key in basic screen").



9.1 Password change level 1

A new password may be assigned in this screen. If several passwords "S2 to S3" were allocated, several screens will appear (9.2 to 9.x).

Part 3

Setting up, preparing, adjusting

		Part / Page
1	Explanation on this section of the Instruction Manual	3 / 1
2	Gearing layout	3 / 3
3	Machine set up; optimise settings	3 / 5

No. of pages 14

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3.1.1 Bale feed, bale groups ..... 3 / 5
3.1.2 Take-off roller ..... 3 / 5
3.1.3 Retaining roller ..... 3 / 5
3.1.4 Drive speed ..... 3 / 5
3.1.5 Run-in program, take-off depth ..... 3 / 5

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3.6 Overview of limit switches ..... 3 / 9
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3.7 Overview of the proximity switches ..... 3 / 10
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3.8 Control system ..... 3 / 11
3.8.1 Possible work on the control system ..... 3 / 11

3.9 V7 frequency converter, G/H ..... 3 / 12
3.9.1 Tagging ..... 3 / 12
3.9.2 Configuration and installation ..... 3 / 12

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3.10.1 Measures to be taken ..... 3 / 12

3.11 Recommissioning ..... 3 / 12
3.11.1 Measures to be taken ..... 3 / 12

3.12 Disposal of Waste ..... 3 / 13
3.12.1 Accident Prevention ..... 3 / 13
3.12.2 Operating Materials ..... 3 / 13
3.12.3 Dismantling ..... 3 / 13

1 Explanation on this section of the Instruction Manual

What is Part 3 for?

Part 3 contains checklists and tables relevant to potential tasks, such as settings, optimisation, etc.

These checklists provide an overview of all tasks that have to be carried out, such as changing to a different type of material, for instance.

What information is contained in Part 3?

The checklists contain all the work instructions on various work situations, with reference to the relevant tables and detailed work descriptions.

When do you need to consult Part 3?

If the machine or plant has to be set up.

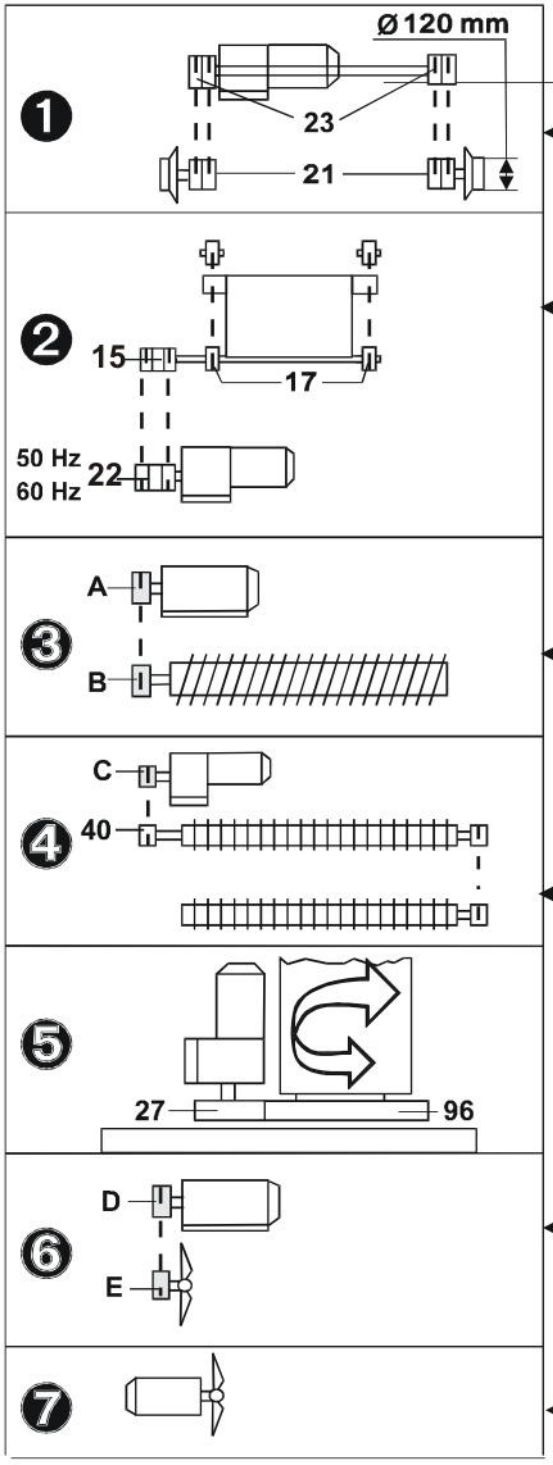
If there is a material change.

If the quality or productivity is to optimised.

If work needs to be carried out on certain components.

2 Gearing layout

2.1 UNIfloc



❶ Screen 40.1
6.0 m/min bis 16 m/min

❷	50 Hz	60 HZ
🐢	23.9 mm/s	28.7 mm/s
🐇	151.3 mm/s	182 mm/s

❸

min^{-1}			
50 Hz	60 Hz	A	B
1772		44	36
1611		40	36
1378		38	40
	1755	40	40
	1580	36	40
	1356	34	44

❹

	«C»		
	Ø 48	Ø 44	Ø 40
6.0m/min	9.8 m/min	8.5 m/min	7.5 m/min
❶ ↕	↕	↕	↕
16.0m/min	28.5 m/min	26.1 m/min	23.5 m/min

❻

D 50 / 60 Hz	E	50 Hz min^{-1}	60 Hz min^{-1}
144 / 129	174	1185	1272
144 / 129	184	1120	1200
144 / 129	194	1061	1138
144 / 129	204	1008	1082

❼

50 Hz	60 Hz
2800 min^{-1}	3360 min^{-1}

1 Drive setting in data screen 40.1
2 Lift drive
3 Drive for take-off roller
4 Drive for retainer roller
5 Drive for rotating tower with frequency converter
6 Fan drive
7 Auxiliary fan

3 Machine set up; optimise settings

3.1 Adjusting machine to take in new raw material

3.1.1 Bale feed, bale groups

– Sort the bales into suitable bale feed arrangements.
☞ Determining the number of bales, Page 6/11

– Arrange the bales in suitable bale groups.
☞ Possible assortments and bale groups, Page 6/9

3.1.2 Take-off roller

– Adjust the rotational speed to the raw material.
☞ Changing the speed of the take-off roller, Page 6/32

3.1.3 Retaining roller

– Adjust the penetration factor according to the material and the production.
☞ Setting the rate of protrusion for the retaining rollers, Page 6/39

3.1.4 Drive speed

– Adjust the drive speed according to the material and the production.
☞ Set drive speed, Page 6/61

3.1.5 Run-in program, take-off depth

– Enter the associated parameter values.
☞ Setting up the run-in and run-out programs, Page 6/18

3.2 Assortment and bale group information

3.2.1 Determining the bale feed arrangement

– Perform calculations.
☞ Possible assortments and bale groups, Page 6/9
☞ Bale arrangement examples, Page 6/10
☞ Determining the number of bales, Page 6/11

– Unpack and arrange the bales.
☞ Setting up the bale feed, Page 6/15

3.3 Production problems

3.3.1 Adjustments during production

– No optimal bale feed arrangement is available.

☞ Bale dimensions , Page 6/8

– UNIfloc is delivering insufficient material, UNImix is running with no material

☞ UNIfloc is delivering insufficient material, UNImix is running with no material, Page 6/7

3.3.2 Production problems at the beginning and end of the bales.

– If the basic program is used, the number of passes and the take-off depths will be automatically calculated, as shown in the diagram. The ratio of full passes to partial passes is 1 : 2.

☞ Setting up the run-in and run-out programs, Page 6/18

3.3.3 Stop motion sensors

– Too many stoppages.

☞ Setting the stop motion sensors to assure personal safety, Page 6/26

3.4 Mechanical settings

3.4.1 Tuft duct

– Tightening the cover belt
  ☞ Tighten the cover band and correct the run of the band, Page 6/71

– Replace defective cover belt.
  ☞ Replace cover belt, Page 6/67

3.4.2 Drive frame

– Tightening the chains at the drive frame
  ☞ Tightening the drive chains, Page 6/66

3.4.3 Take-off unit

– Align the take-off unit horizontally and set the damping.
  ☞ Horizontally align the take-off unit, Page 6/21
  ☞ Adjusting the damping of the take-off unit, Page 6/60

– Tightening or replacing the lifting chains
  ☞ Removing lift chains, Page 6/52
  ☞ Installing lift chains, Page 6/54
  ☞ Tightening the chains of the lift drive, Page 6/55

– Setting the brake for the lifting drive
  ☞ Adjust the brake of the lift drive, Page 6/50

3.4.4 Rotating tower

– Set the tooth play of the drive for the rotating tower.
  ☞ Setting the tooth play of the turning drive, Page 6/42

– Setting the brake for the rotating tower drive
  ☞ Adjust the brake of the turret drive, Page 6/44

3.5 Replacing parts

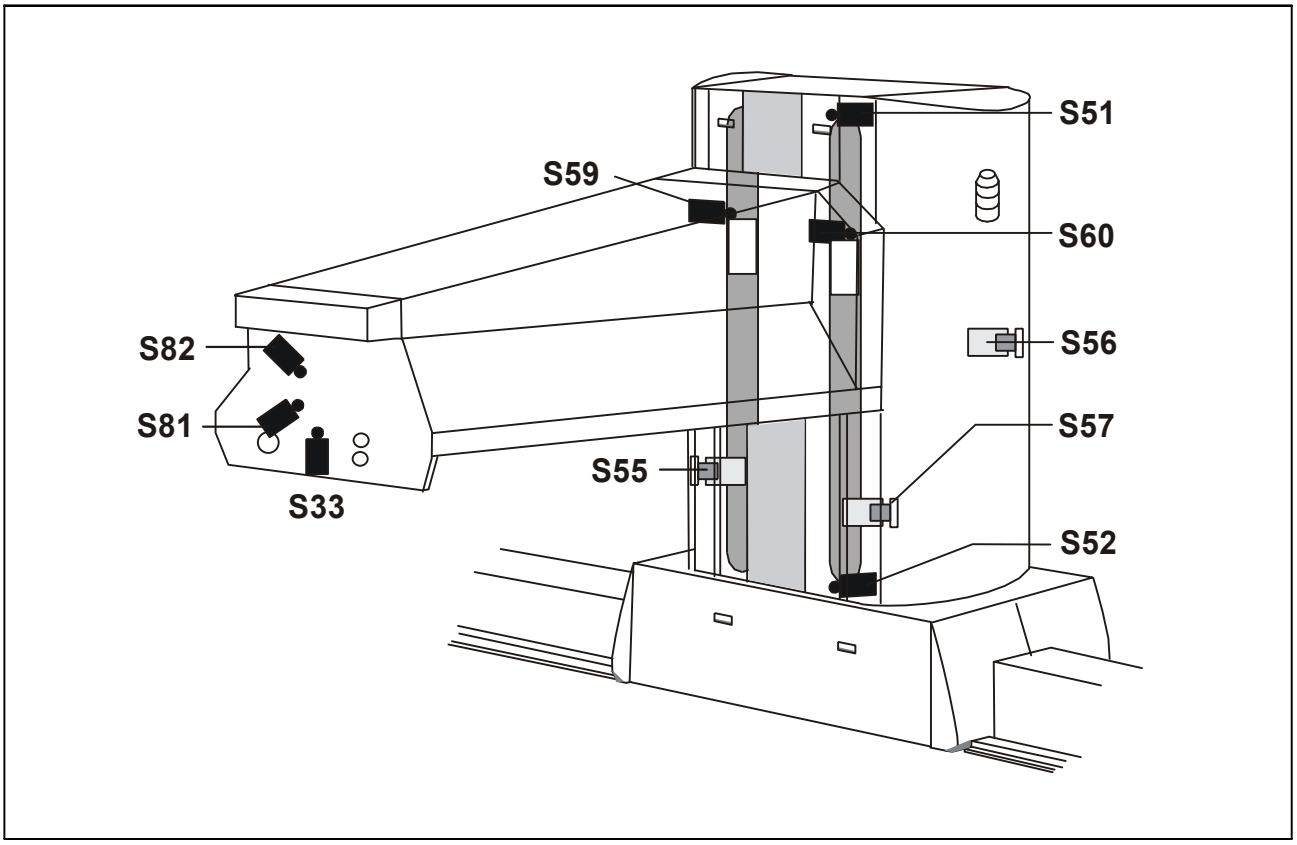
3.5.1 Take-off unit

– Replace rounded, deformed double teeth.
  ☞ Replace double tooth, Page 6/34

– Replace the take-off roller.
  ☞ Replacing take-off roller, Page 6/29

– Replace the brake blocks. (Always support the take-off unit beforehand.)
  ☞ Replace anti-drop device brake block, Page 6/58

3.6 Overview of limit switches



S33 *Foreign matter monitoring*

S51/S52 *Upper and lower lift limits*

S55-S57 *Door safeguards*

S59/S60 *Overload protection on the take-off unit*

S81/S82 *Swiveling flap on left and right*

3.6.1 Adjusting limit switches

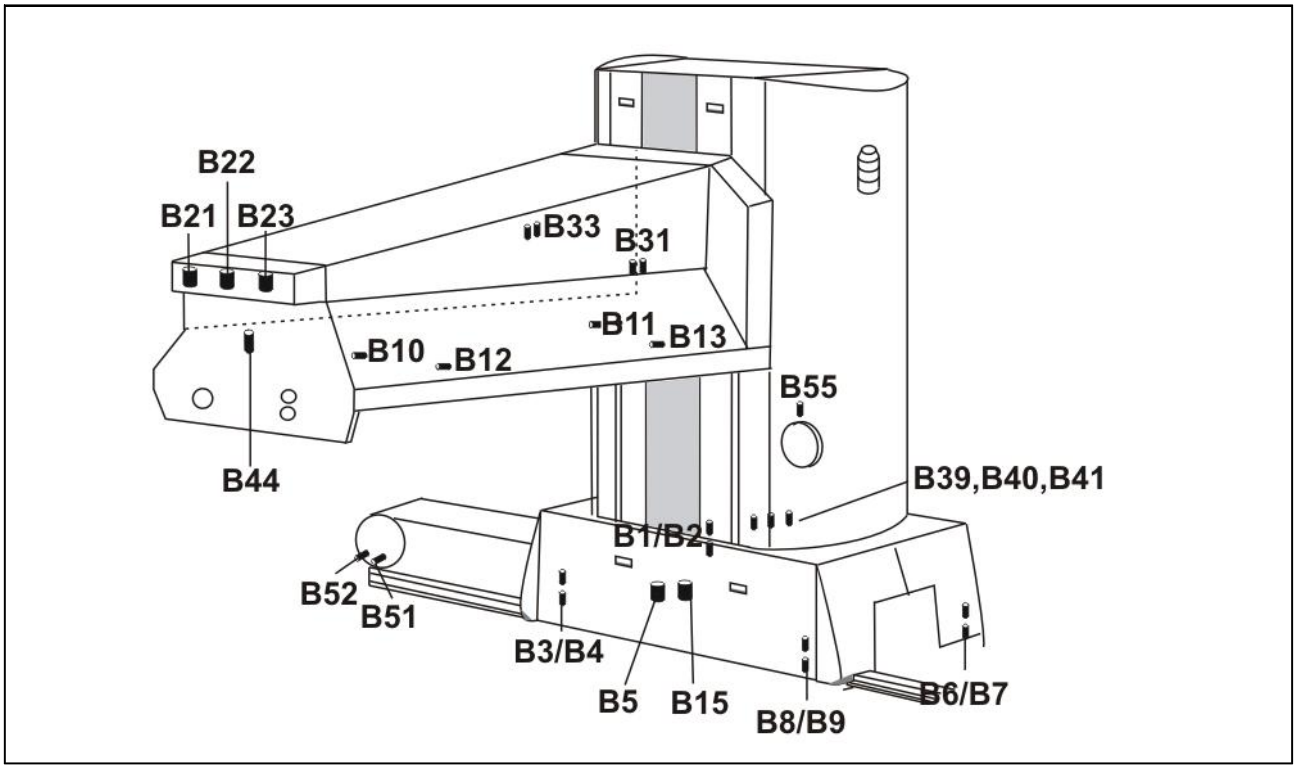
– Set the limit switch for the foreign-matter flap monitoring.
☞ Setting the foreign matter monitoring, Page 6/28

– Set the displacement limits.
☞ Adjusting the upper and lower lift limit, Page 6/41

– Set the overload safeguard at the take-off unit.
☞ Setting the overload protection for the take-off unit, Page 6/33

– Set the swivel flaps of the take-off unit.
☞ Adjusting the swiveling flap in the take-off unit, Page 6/27

3.7 Overview of the proximity switches



B21-B23	*Stop motion sensors*
B1-B9	*Collision safeguard*
B5	*Zero position*
B10-B13	*Collision safeguard on the take-off unit*
B31, B33	*Cover monitoring at the take-off unit.*
B15	*Position of bale groups "P1...P5"*
B39,-B40, 41	*Rotating tower control, rotating tower monitoring*
B44	*Speed of take-off rollers*
B55	*Height positioning of the take-off unit.*

3.7.1 Adjust the proximity switches

– B1 to B9: Set collision safeguards at the drive frame.
  ☞ Adjusting the collision safeguards on the chassis, Page 6/62
– B15: Set positions for the bale groups.
  ☞ Setting positions for the bale groups, Page 6/63
– B10, B11, B12 and B13: Set the collision safeguards at the take-off unit.
  ☞ Adjusting the collision safeguards on the take-off unit, Page 6/22
– B51 and B52: Set positions for the length measurement.
  ☞ Setting proximity switches for length measurement, Page 6/65
– B55: Set position for the lift measurement.
  ☞ Adjusting the lift count, Page 6/56
– B39, B40 and B41: Set positions for the monitoring of the rotating tower.
  ☞ Setting proximity switches for the positioning of the rotating tower, Page 6/48
– B61, B62, B63 and B64: Set the light barrier at the take-off unit.
  ☞ Adjusting the light barriers on the take-off unit, Page 6/25
– B21, B22 and B23: Set the stop motion sensors.
  ☞ Setting the stop motion sensors to assure personal safety, Page 6/26

3.8 Control system

3.8.1 Possible work on the control system

– Work on the basic module
  ☞ Carrying out a cold start, Page 6/74
  ☞ Software exchange between memory card and control system, Page 6/76
  ☞ Setting the IP address, Page 6/83
  ☞ Change battery of control system, Page 6/74
– Tasks involving I/O cards and bus systems
  ☞ Setting or wiring terminators for the CAN bus, Page 6/78
  ☞ Setting the CAN node address on the CAN node module EX470, Page 6/79
  ☞ How to properly set the DIL switch on the CM211 combination module, Page 6/81

3.9 V7 frequency converter, G/H

Depending on the machine design, this type of frequency converter might be installed.

3.9.1 Tagging

– Check the data of the new frequency converter.
☞ Identifying the frequency converter, Page 6/84

3.9.2 Configuration and installation

– The components must be configured appropriately.
☞ Configuring the V7 frequency converter, H/G , Page 6/88

– Before installation, coat with heat transfer compound.
☞ Adjusting to the cooling system, Page 6/89

3.10 Decommissioning

3.10.1 Measures to be taken

– Bring the machine into its secure state.

– Disconnect the power supply.

– Protect the machine against unauthorized use.

– Secure the machine in such a way that during downtimes there is no risk of injury to any person.

– Protect the machine against contamination and corrosion.

3.11 Recommissioning

3.11.1 Measures to be taken

– Check all safety-relevant elements for proper functioning.

3.12 Disposal of Waste

3.12.1 Accident Prevention

Note: See the “Work safety” chapter of Section 1.

– The regulations relating to workplace safety must be absolutely complied with!

3.12.2 Operating Materials

– Ensure proper disposal of operating materials. Drain oil, coolant, etc.

3.12.3 Dismantling

Note: The following procedures may be done by trained specialists only who are familiar and comply with the general safety regulations (see Section 1 and 6).

– The machine must be dismantled into units that can be safely transported.

– Hazardous machine parts that pose a risk during transport must be dismantled and safely packed.

Part 4

Maintenance

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1 Safety precautions

1.1 Safety precautions during cleaning work

Safety precautions

Switch off main switch Q10 and secure with padlock.

All jobs requiring these security measures are indicated by an appropriate symbol on the particular page.

Inflammable fuel

If inflammable cleaning agents are used in the spinning mill, their flash point should be above 55ºC.

1.2 Safety precautions during lubrication

Remove any drops of oil and other lubricants on the floor immediately to prevent all risk of slipping and falling.

2 Explanations for maintenance and intervals

Maintenance necessity

Periodic maintenance is a prerequisite for long life time.

Periodic maintenance avoids unnecessary down time.

Maintenance targets

To keep equipment in good conditions with a minimum of problems .

To avoid interruptions by preventing measures

Pay backs of organised maintenance

Maintenance may be scheduled and labour requirements anticipated

Not sufficient maintenance or poorly organised maintenance:

Problems will arise at any time, avoidable loss of production will be encountered

Correct cleaning procedures

Cleaning must be done in a timely manner and at the right place

Correct lubrication procedures

Lubrication procedures must be done in a timely manner with proper lubricant at the right place and in the right amount

To be able to lubricate properly it is necessary to have good equipment and exact operational scheduling

Preparations require that machines and equipment are in appropriate conditions

Personnel must be trained and familiar with the task on hand.

Adapt maintenance schedules to operating conditions

Maintenance schedules depend upon material, trash content, air condition, and operating conditions

The recommended maintenance schedules are mere proposals to be changed according to local conditions

Intervals

There are intervals which are valid either only once or at cyclical intervals

The unique ones are only to be used after the first installation and start-up. This can apply to the whole machine or to an individual element. For example, should a newly fitted belt needed to be re-stretched after a certain running time.

Cyclical tasks must be performed repeatedly.

For example, after a running time of 660 hours, the 165, the 330 and the 660 maintenance work must be carried out.

In 3 shift operation, the following intervals correspond to the quoted times.

165 operating hours = 1 week

330 operating hours = 2 weeks

660 operating hours = 4 weeks

2000 operating hours = 3 months

4000 operating hours = 6 months

8000 operating hours = 12 months

Maintenance planning

The maintenance schedule serves as overview for this.

The maintenance schedule is given in tabular form and lists the intervals at which the different maintenance work is required.

The maintenance plan permits a detailed customer-specific maintenance schedule to be drawn up.

The work description is referenced for each piece of maintenance work.

For service specialists who carry this work out on a routine basis, this need to refer to a work description is no longer necessary.

The tabulated column "Values" gives the service specialist details of the lubrication points.

The tabulated column "Values" contains a summary of the most important data on the corresponding lubrication points.

1. Location designation of the lubrication points
2. Number of lubrication points, for example the number of lubricating nipples = 8.
3. Lubricant information, e.g. EP2
4. Lubricant type, e.g. "grease"
5. Lubricant quantity, e.g. 3 pump strokes per lubricating nipple.

3 Maintenance schedule

3.1 UNIfloc

Interval 165 Operating hours (Cyclic, repeat regularly):

Component name	Task	Values	See
UNIfloc	Clean the whole machine		4/7
Drive of swiveling turret	Cleaning the gears of the drive for the rotating tower		4/8

Interval 660 Operating hours (Cyclic, repeat regularly):

Component name	Task	Values	See
Take-off unit	Clean and inspect the take-off roll		4/9
Double tooth of the take-off roller	Replace double tooth		6/34
Cover band of the flock feeder channel	Check and clean the cover bands.		4/10
Cover band of the flock feeder channel	Tighten the cover band and correct the run of the band		6/71

Interval 2000 Operating hours (Cyclic, repeat regularly):

Component name	Task	Values	See
Frequency converter	Cleaning the housing of the frequency inverter		4/11
Longitudinal position sensor of the chassis	Cleaning perforated disc and proximity switches		4/12
UNIfloc	Lubricate the vertical lift chains and the drive chain of the lift drive.		4/13
Longitudinal position sensor of the chassis	Setting proximity switches for length measurement		6/65
Lift chain	Tightening the chains of the lift drive		6/55
Lift drive brakes	Adjust the brake of the lift drive		6/50
Brakes for turret rotation	Adjust the brake of the turret drive		6/44

Interval 4000 Operating hours (Cyclic, repeat regularly):

Component name	Task	Values	See
Frequency converter	Regenerating the replacement frequency converter		6/84

Interval 8000 Operating hours (Cyclic, repeat regularly):

Component name	Task	Values	See
Exhaust fan	Check the exhaust fan		4/14
Double tooth of the take-off roller	Check the double teeth		4/14
Rotary drive of turret	Setting the tooth play of the turning drive		6/42

Interval 16000 Operating hours (Cyclic, repeat regularly):

Component name	Task	Values	See
Lift chain	Replacing lift chains		6/51

Interval 32000 Operating hours (Cyclic, repeat regularly):

Component name	Task	Values	See
Damping and protective devices of the take-off unit's suspension	Replace anti-drop device brake block		6/58
UNIfloc	Lubricating all gear motors	Drive for retainer roller, 1 CC220, EP-oil, 330 cm³ ☞ Lubricating the gear motors, Location number: 1, Page 4/21	4/15
		Drive for rotating tower, 1 CC220, EP-oil, 2200 cm³ ☞ Lubricating the gear motors, Location number: 2, Page 4/21	4/15
		Lift drive, front gearbox, 1 CC220, EP-oil, 250 cm³ ☞ Lubricating the gear motors, Location number: 3, Page 4/21	4/15
		Lift drive, main gearbox, 1 CC220, EP-oil, 800 cm³ ☞ Lubricating the gear motors, Location number: 3, Page 4/21	4/15
		Traction drive, 1 CC220, EP-oil, 1200 cm³ ☞ Lubricating the gear motors, Location number: 4, Page 4/21	4/15

Interval 24000 Operating hours (Cyclic, repeat regularly):

Component name	Task	Values	See
Frequency converter	Replacing the frequency converter		6/85

4 Cleaning / Lubrication

Purpose of cleaning

Regular maintenance and constant cleaning of the machine contribute towards trouble-free operation.

Use of cleaning agents

Natural residue from cotton, such as honeydew, is best cleaned off with a cleaning rag and hand-warm water.

Residue from lubricants and deposits from synthetic fiber material are best cleaned with a solvent that does not attack rubber and paint. e.g. use cleaning alcohol or water with a grease-dissolving general-purpose cleaner

Use a high-powered industrial vacuum cleaner to remove dust and fly. The suction nozzle must be fitted with a plastic tip.

After cleaning, the least volatile cleaning agents such as kerosine, white spirit, must be blown out of the anti-friction bearings, using clean compressed air and without rotating the bearing.

Caution

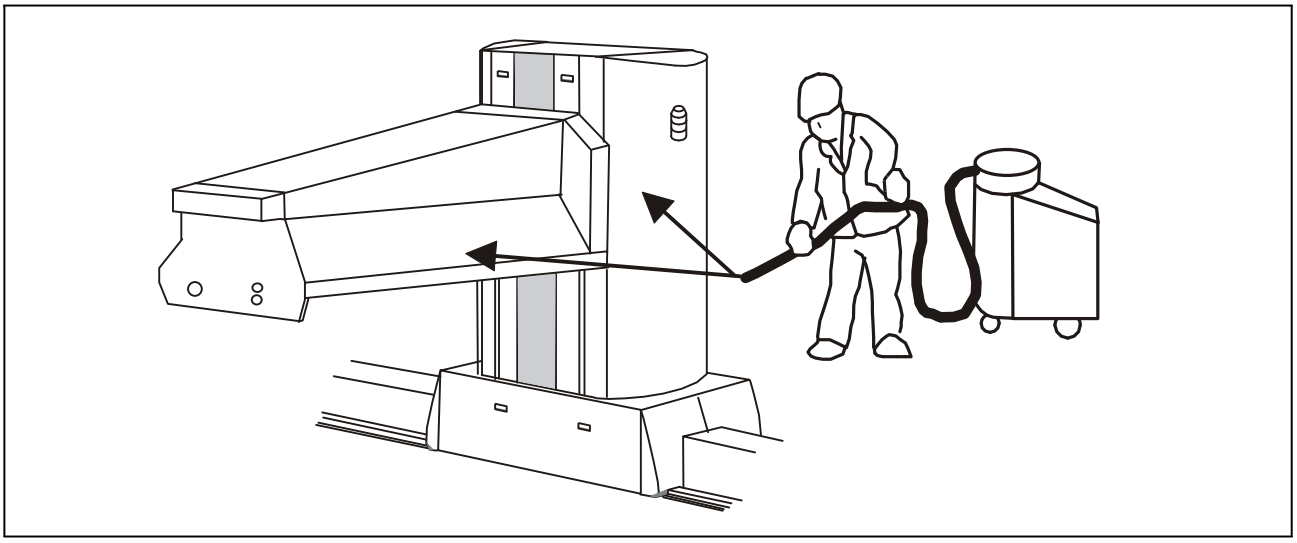
Unauthorised conversions or modifications are not allowed, as there is then no guarantee that the machine will function correctly.

4.1 UNIfloc

4.1.1 Interval 165 Operating hours (Cyclic, repeat regularly):

4.1.1.1 Clean the whole machine

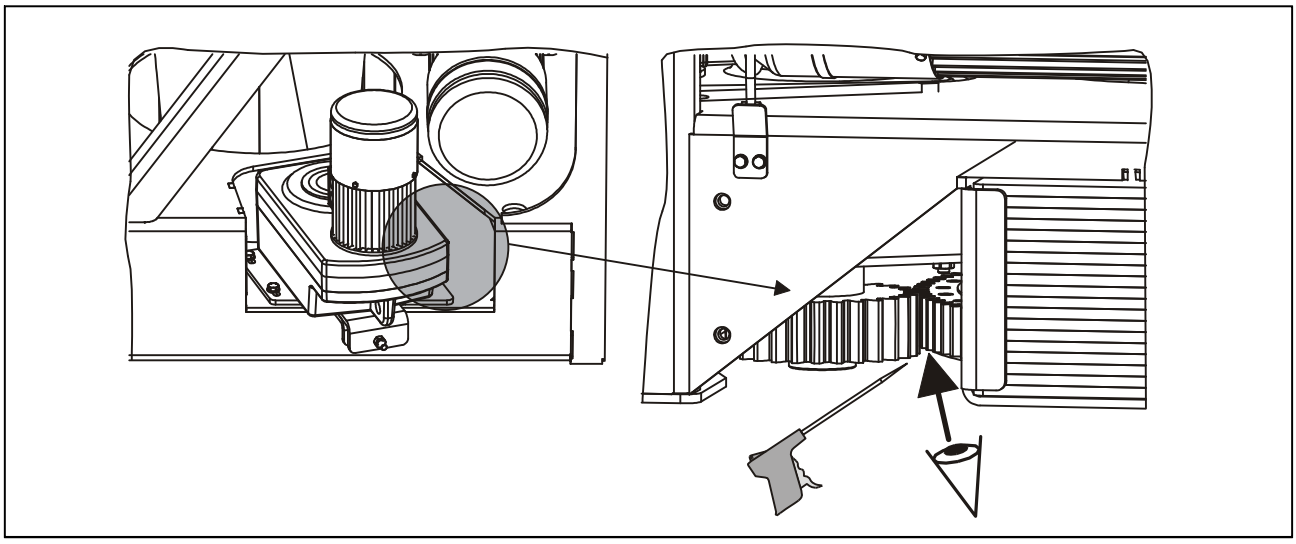
WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.



– Use a vacuum cleaner to clean the insides of the rotating tower and the take-off unit.

4.1.1.2 Cleaning the gears of the drive for the rotating tower

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

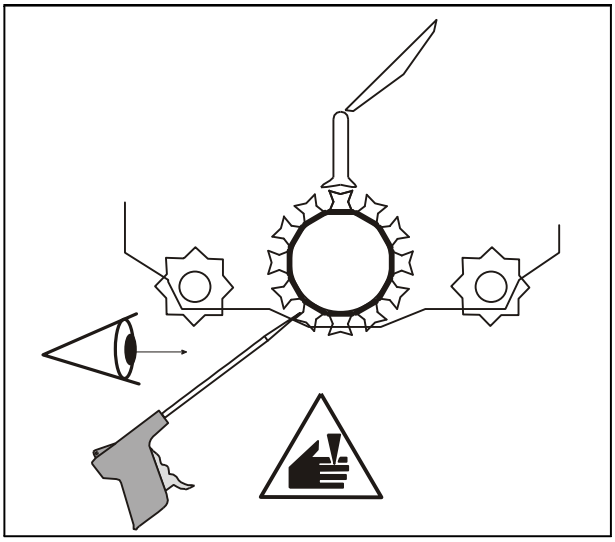


– Clean the gears.
Note: Do not lubricate the gears.

4.1.2 Interval 660 Operating hours (Cyclic, repeat regularly):

4.1.2.1 Clean and inspect the take-off roll

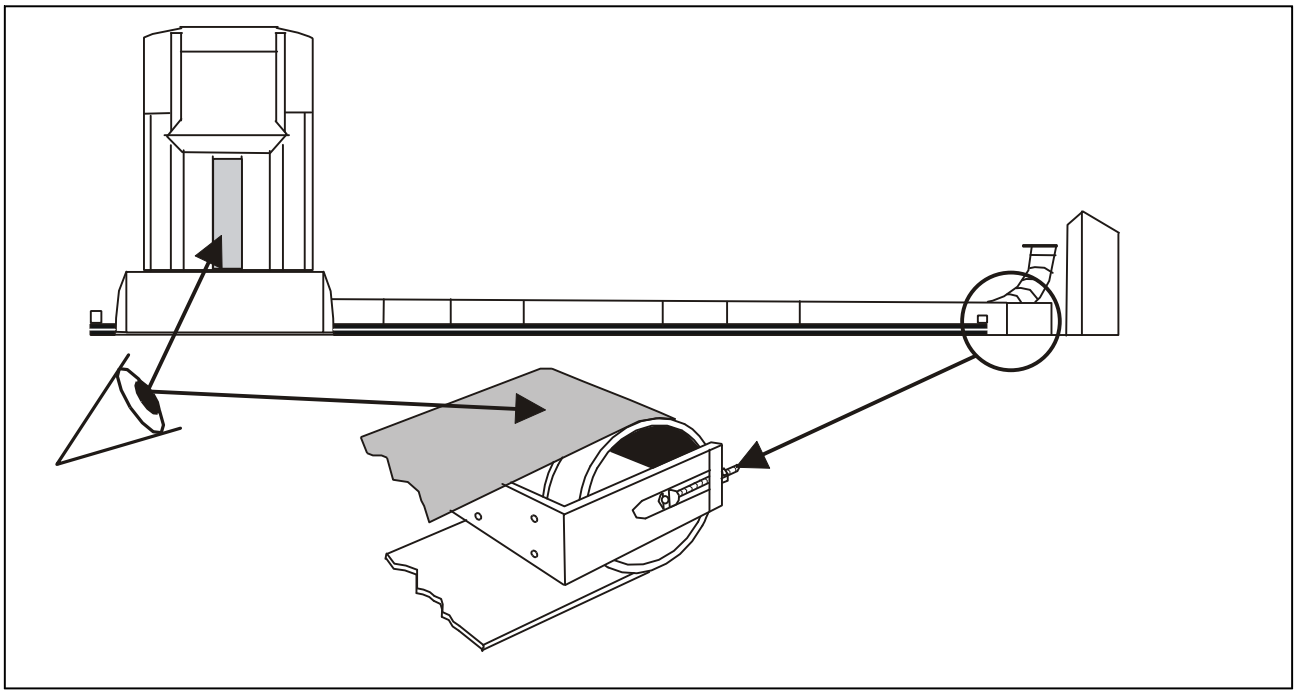
WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.



- Check the take-off roller for smooth running.
- Clean the take-off roller; remove any trapped fibres (fibre bunches).
- Check the condition of the double teeth.
  Note: Replace defective or worn double teeth.

4.1.2.2 Check and clean the cover bands.

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

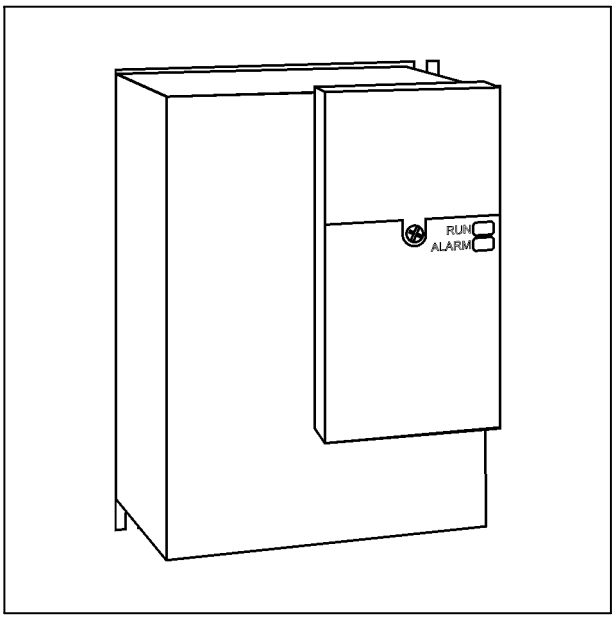


– Check the condition of the cover belts and clean them.
– Check the belt guides.
– Check the belt tension.
– Remove the dirt between the cover belt and the guide rails.

4.1.3 Interval 2000 Operating hours (Cyclic, repeat regularly):

4.1.3.1 Cleaning the housing of the frequency inverter

☞ Description Frequency converter, Page 6/85

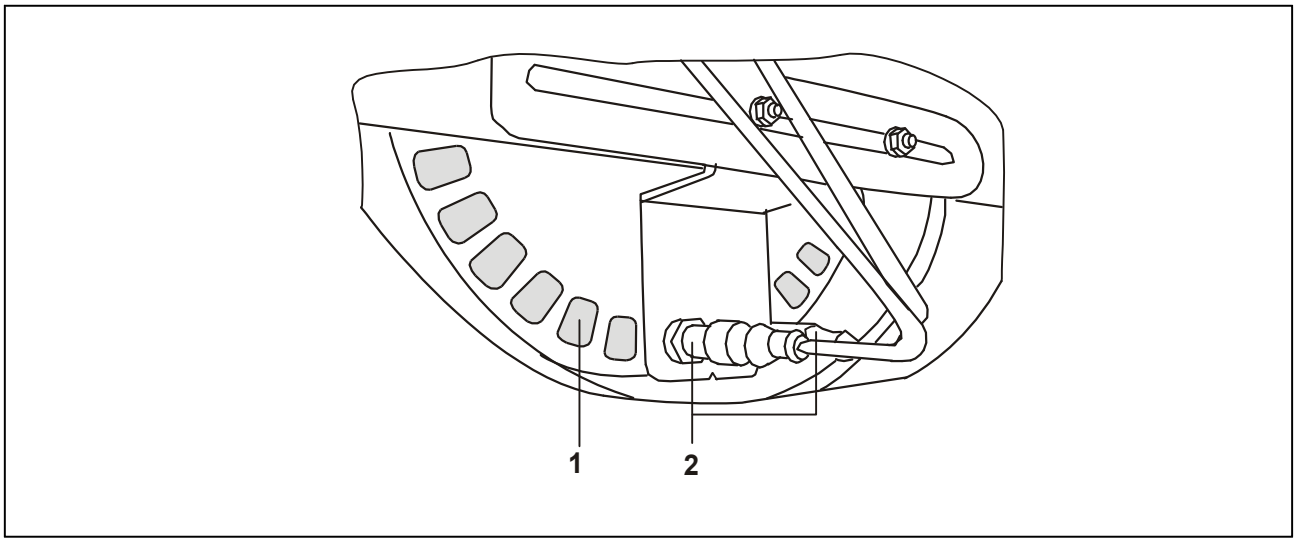


WARNING
When the main switch is on, elements after the main switch are still live.
Injury due to electric shock
Turn off the main switch and secure with a padlock before working on any electric installations.

DANGER
After the appliance has been disconnected from the mains, the intermediate circuit remains live at first (intermediate circuit capacitor).
Non-compliance may result in severe or even fatal injuries.
Trained, competent personnel only may carry out work on the control cabinet and on electrical installations.
It may take up to 10 minutes for the unit to discharge. Once the equipment is disconnected from the power supply, it is imperative you wait 10 minutes for it to discharge completely.
Before commencing work, check the tension voltage of the intermediate circuit. The voltage must have dropped to below 60 Volt.

– Clean the entire surface of the housing with a vacuum cleaner.

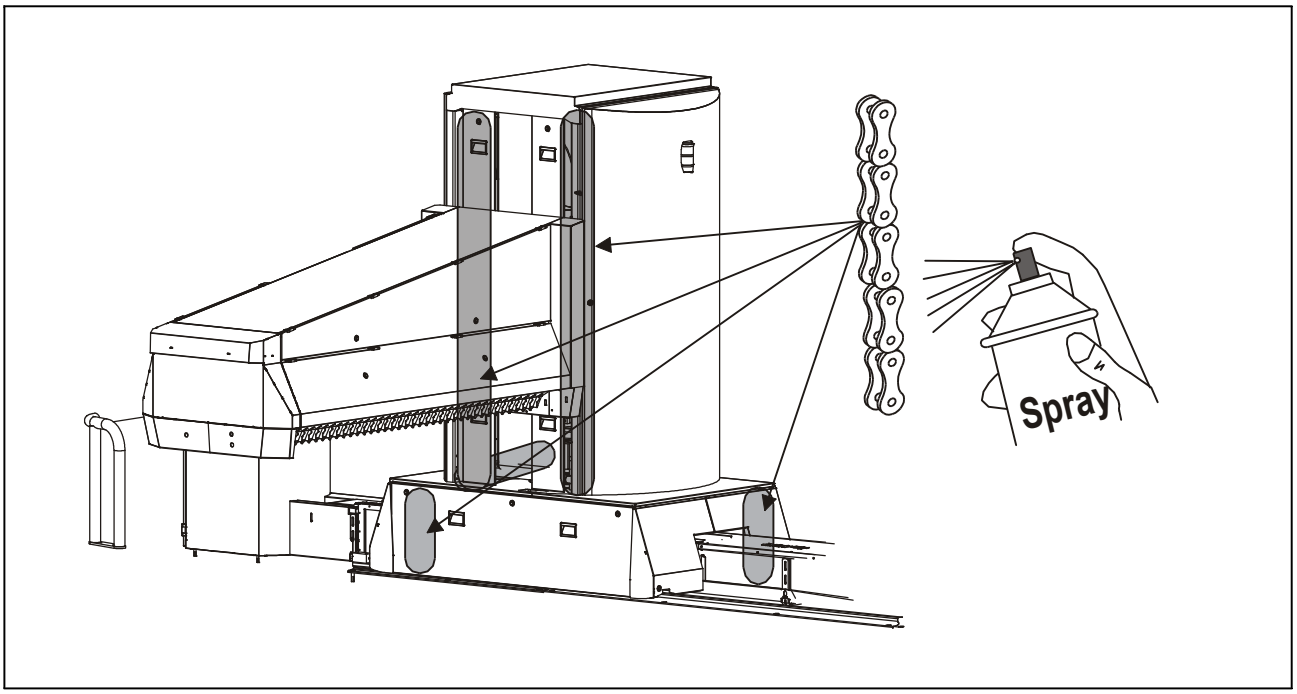
4.1.3.2 Cleaning perforated disc and proximity switches



– Clean the perforated disc (1) and the proximity switches (2).

4.1.3.3 Lubricate the vertical lift chains and the drive chain of the lift drive.

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.



– Clean the chains and lubricate using a chain spray.

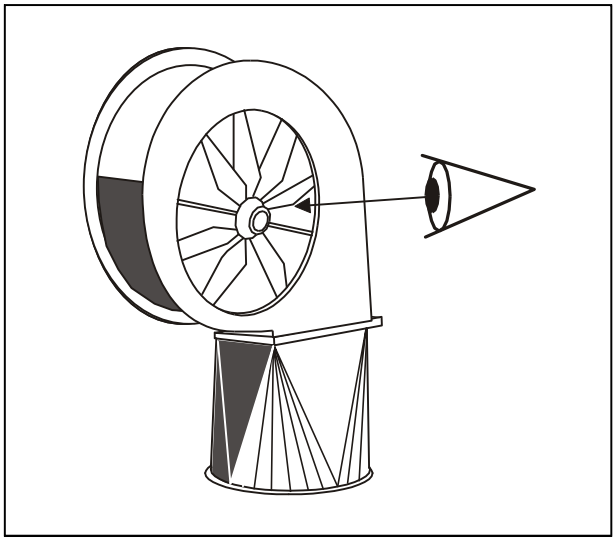
– Check the chain tension.
Note: The chains must only be tightened in such a way that the links can be moved on the unloaded side.

– On no account should the guides of the take-off unit be sprayed with chain oil. If necessary, cover the guides.

– After completing the work, refit the covers.

4.1.4 Interval 8000 Operating hours (Cyclic, repeat regularly):

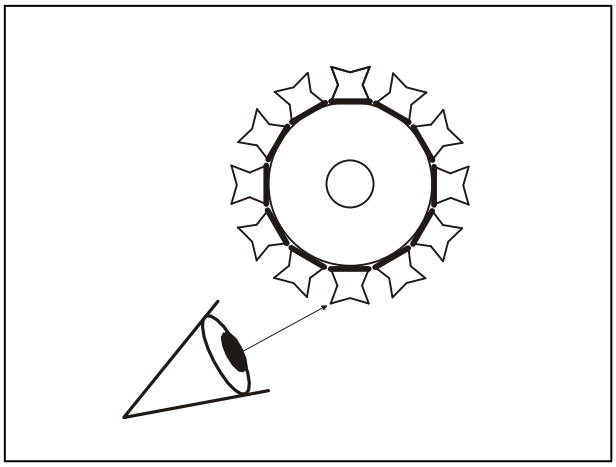
4.1.4.1 Check the exhaust fan



– Check the impeller for wear and damage.
Damaged impellers may cause an increase in nep formation.

4.1.4.2 Check the double teeth

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

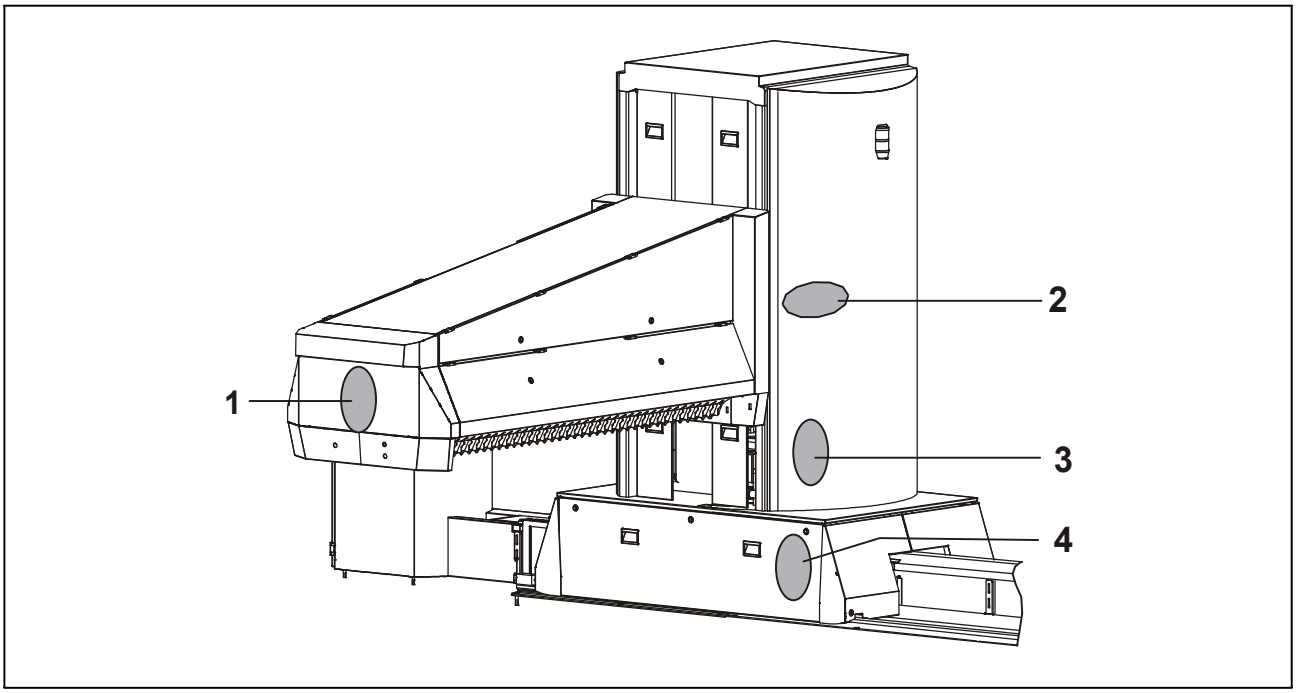


– Check teeth for wear.
Note: Worn teeth result in poor removal, poor opening and even nep formation.

4.1.5 Interval 32000 Operating hours (Cyclic, repeat regularly):

4.1.5.1 Lubricating all gear motors

Note: Do not mix the oils used.



– Changing the oil for the retainer roller drive

Medium: CC220

Quantity:	330 cm³
Location number:	1
Place:	Drive for retainer roller

☞ Lubricating the gear motors, Page 4/21

– Changing the oil for the rotating tower drive

Medium: CC220

Quantity:	2200 cm³
Location number:	2
Place:	Drive for rotating tower

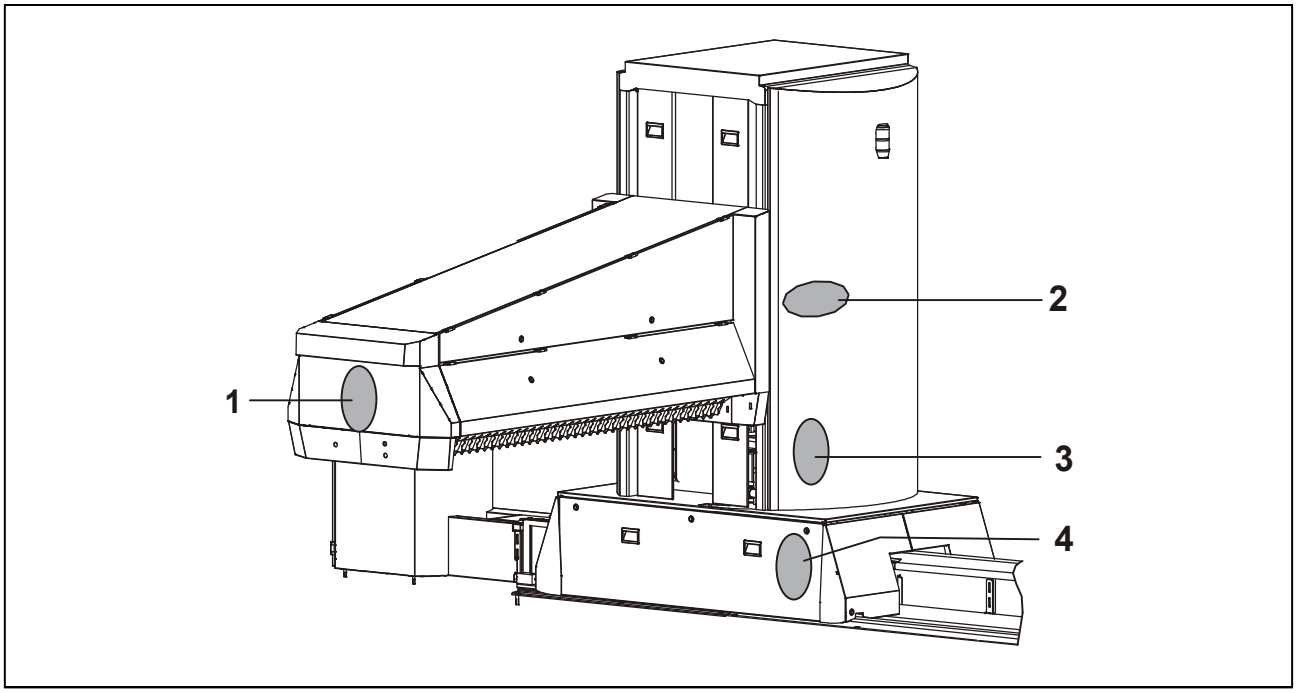
☞ Lubricating the gear motors, Page 4/21

– Changing the oil from the front gearbox of the lift drive

Medium: CC220

Quantity:	250 cm³
Location number:	3
Place:	Lift drive, front gearbox

☞ Lubricating the gear motors, Page 4/21



– Changing the oil from the main gearbox of the lift drive

Medium: CC220

Quantity:	800 cm³
Location number:	3
Place:	Lift drive, main gearbox

☞ Lubricating the gear motors, Page 4/21

– Changing the oil for the traction drive

Medium: CC220

Quantity:	1200 cm³
Location number:	4
Place:	Traction drive

☞ Lubricating the gear motors, Page 4/21

5 Lubricant Manufacturer

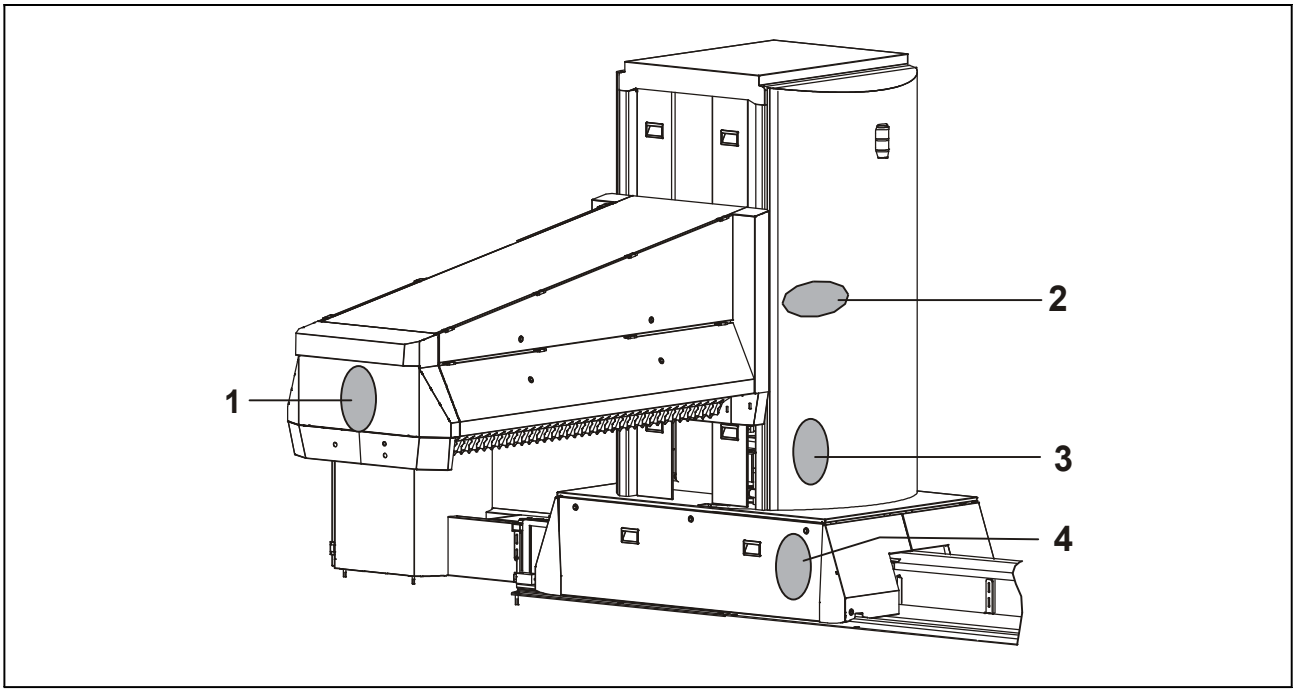
Lubricant	Manufacturer	Name
CC220	AGIP	BLASIA 220
	ARAL	DEGOL BG 220
	AVIA	AVIA GEAR RSX 220
	BP	ENERGOL GR - XP 220
	ESSO	SPARTAN EP 220
	KLÜBER	KLÜBER GEM 1-220 N
	MOBIL	MOBILGEAR 630
	OPTIMOL	OPTIGEAR BM 220
	SHELL	OMALA 220
	TEXACO	MEROPA 220
	VALVOLINE	EPG 220

6 Standard lubricant

Code	Designation	Viscosity	DIN	ISO	Description
CC220	EP-oil	Viscosity according to ISO mm2/s 40ºC 220	CLP220 (51517/3	CC220	oil on paraffin base,VI> 90. No or no significant swelling of O-rings or any other synthetic seals No aggression toward bronze Good load-bearing abil-ity; FZG-Test Load class 12. High load additives phosphor-sulphur-based or equivalent EP addit-ives

7 Lubrication points

Lubricating the gear motors



Location number	Place	Number	Medium	Quantity	Special tools
1	Drive for retainer roller	1	CC220	330 cm³	
2	Drive for rotating tower	1	CC220	2200 cm³	
3	Lift drive, front gearbox	1	CC220	250 cm³	
3	Lift drive, main gearbox	1	CC220	800 cm³	
4	Traction drive	1	CC220	1200 cm³	

Part 5

Troubleshooting

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1 Explanation on this section of the Instruction Manual

What is Part 5 for ?
Part 5 helps in discovering the cause of a fault and remedying it.

What information is contained in Part 5 ?
Part 5 lists the causes of faults and gives information about remedying them.

When does Part 5 need to be consulted?
When a fault is displayed on the machine with an error code or in the case of faults which cannot be recognised by the machine.

2 Operator panel

2.1 Malfunction

Code	Designation Reaction/consequences	Cause	Remedy
200	Safety circuit control unit	Malfunction of the K213 or K212 relay in the operator panel.	Check the wiring and operation of the K213 and K212 relays according to the electric circuit diagram. Replace if necessary.
201	Safety circuit control unit	Malfunction of the K214 or K300 relay in the operator panel.	Check the wiring and operation of the K214 and K300 relays according to the electric circuit diagram.
202	Safety circuit machine	Malfunction of the K214 or K300 relay in the operator panel.	Check the wiring and operation of the K214 and K300 relays according to the electric circuit diagram.
203	Safety circuit machine	Malfunction of the K214 or K300 relay in the operator panel.	Check the wiring and operation of the K214 and K300 relays according to the electric circuit diagram.
204	Timing relay does not open	Malfunction of the K215 timing relay in the machine.	Check the wiring, operation, and setting of the K215 relay according to the electric circuit diagram. Replace if necessary.
205	Timing relay does not close	Malfunction of the K215 timing relay in the machine.	Check the wiring, operation, and setting of the K215 relay according to the electric circuit diagram. Replace if necessary.
206	Timing relay opens too fast	Malfunction of the K215 timing relay in the machine.	Check the wiring, operation, and setting of the K215 relay according to the electric circuit diagram. Replace if necessary.
207	Safety circuit machine	Malfunction of the K211 relay in the machine.	Check the wiring and operation of the K211 relay according to the electric circuit diagram. The cause of the fault may also lie in the safety circuit of the operator panel.
208	Door safeguards	Door safety device S55, S56 or S57 has responded.	Close the door Replace the defective switches
209	Emergency shut down control unit	The emergency stop button has been engaged.	Find out why the EMERGENCY STOP button has been engaged. Disengage the EMERGENCY STOP button.
210	Emergency shut down take-off unit	The emergency stop button has been engaged.	Find out why the EMERGENCY STOP button has been engaged. Disengage the EMERGENCY STOP button.

Code	Designation Reaction/consequences	Cause	Remedy
220	Inverter initializing	Initialization / Parameterization for the frequency converter failed.	The malfunction cannot be acknowledged. Turn the main switch off and then on again Check CAN bus (plug). You may have to unplug the Can bus connector Check the converter settings (see electrical schematic) Replace converter if necessary
221	Motor over temperatur	The temperature monitoring unit of the R2 braking resistor has been triggered. The braking resistor is becoming too hot.	Check the wiring of the R2 braking resistor according to the electric circuit diagram. Replace converter.
222	Inverter over temperatur	The converter is not cooled properly. The motors pick up too much electricity.	Check the heat sink of the converter for dirt. Converter fan is defective Replace converter if necessary. Check the temp. in the control cabinet. Check the motors for the retaining rollers and both drive motors. Replace the motors if necessary
223	Inverter over voltage	Supply voltage is too high. (>440V). Defective converter.	Determine the cause of the overvoltage. Replace the converter.
224	Inverter under voltage	Supply voltage is too low. (<360 V). Defective converter	Determine the cause of the low voltage. Replace the converter.
225	Inverter over tension	Peak current is too high	Check the motors for the retaining rollers and both drive motors. Replace the motors if necessary Replace converter if necessary.
226	Inverter in general	General troubleshooting	Turn main switch off and on again
		Detected malfunction in the converter.	Check converter connections. Turn the main switch off and then on again Replace converter if necessary.
227	Inverter communication	General troubleshooting	Turn main switch off and on again
		Faulty CAN bus communication. Converter is off. Electronic converter is defective.	Check the CAN bus (may have to unplug it). Check the wiring of the converter according to the electrical schematic. Replace converter if necessary
228	Converter, Rieter label missing	Incorrect converter being used	Use the converter supplied by Rieter

Code	Designation Reaction/consequences	Cause	Remedy
240	Module A11 (DI138)	Plug connection to module A11 not OK.	Check the plug-in connection Check the wiring according to the electrical schematic. You may have to replace module A 11.
241	Module A12 (DO138)	Plug connection to module A12 not OK.	Check the plug-in connection Check the wiring according to the electrical schematic. You may have to replace module A 12.
242	CAN Node 2 (A20 / EX470	CAN node A 20 error detected during a system test. Malfunction while in operation.	Check CAN bus wiring. Check address switches according to the electrical circuit diagram. Switch the machine off and then on again You may have to replace the CAN module of the converter.
243	CAN Node 3 (A30 / Inverter)	CAN node U1 error detected during a system test. Malfunction while in operation.	Check CAN bus. The CAN bus may have to be disconnected. Switch the machine off and then on again You may have to replace the CAN module of the converter.
244	Module A21 (CM211)	Module A 21 error detected during the system test or malfunction while in operation.	You may have to replace Module A 21. ☞ Check combination module CM211, Page 6/80
245	Module A22 (DM465)	Module A 22 error detected during the system test or malfunction while in operation.	Test K 214 contact for proper excitation of A 22. (see electrical schematic) You may have to replace module A 22. ☞ Checking the digital blend module DM465, Page 6/82
246	Module A23 (DM465)	Module A 23 error detected during the system test or malfunction while in operation.	Test K 215 contact for proper excitation of A 23. (see electrical schematic) You may have to replace A 23 ☞ Checking the digital blend module DM465, Page 6/82
247	Module A24 (DM465)	Module A 24 error detected during the system test or malfunction while in operation.	Test K 214 contact for proper excitation of A 24. (see electrical schematic) You may have to replace A 24 ☞ Checking the digital blend module DM465, Page 6/82
260	Motor protecting switch control unit	A motor protection switch in the operator panel has been triggered.	Determine the cause of the trigger. Set the current according to the electric circuit diagram. Turn on the motor protection switch again and acknowledge.

Code	Designation Reaction/consequences	Cause	Remedy
261	Motor protecting switch machine	The motor protection switch in the machine has been triggered.	Determine the cause of the trigger. Set the current according to the electric circuit diagram. Turn on the motor protection switch again and acknowledge.
262	Thermo opener lift drive	The thermal break contact on the lift drive was triggered.	Let the motor cool down. Test the thermal break contact; it has to indicate continuity when the motor is cooled down. Check the wiring of the thermal break contact according to the electrical schematic. You may have to replace the motor.
263	Foreign body monitoring	The foreign particle monitor in the take-off unit has been triggered.	Remedy the problem by inspecting the take-off unit. Check limit switches. Possibly place the switching cams further apart. Possibly increase penetration factor. Select a slower drive speed. ☞ Setting the foreign matter monitoring, Page 6/28
264	Overload take-off unit	The take-off unit has hit on resistance in downward or upward motion. One of the limit switches was triggered.	Check as to why the take-off unit hit on resistance. Remedy the cause. Check if the limit switches are working properly. Adjust the limit switches Check the wiring according to the electrical schematic.
265	Plug monitoring take-off unit	The plug on the take-off unit is unplugged.	Inspect the plug on the take-off unit.
266	Thermo opener take-off roller	Thermal break contact element on the take-off roller motor has triggered..	Let the motor cool down. Test the thermal break contact; it has to indicate continuity when the motor is cooled down. Inspect the wiring of the thermal break contact element using the circuit schematics. You may have to replace the motor.
267	Disturbance shut down sensoric	The stop motion sensors have detected a hardware error.	Check the relay wiring of K599 and K570 according to the diagram. Check the electrical connections of the sensors on the analysing unit. Replace the sensors if necessary. ☞ Setting the stop motion sensors to assure personal safety, Page 6/26

Code	Designation Reaction/consequences	Cause	Remedy
268	Alarm shut down sensoric	An object is present in the monitored area of the take-off unit.	The front of the take-off unit must be clear. Check the sensor settings via the LEDs. Replace the analysing unit if necessary. ☞ Setting the stop motion sensors to assure personal safety, Page 6/26
269	Shut down sensoric dist. remains	The control unit has detected an error in the stop motion sensors.	Check the wiring and operation of the K 572 and K 570 relays according to the electric circuit diagram. Replace the stop motion sensors if necessary. ☞ Setting the stop motion sensors to assure personal safety, Page 6/26
270	Shut down sensoric alarm remains	The control unit has detected an error in the stop motion sensors.	Check the wiring and operation of the K 572 and K 570 relays according to the electric circuit diagram. Replace the stop motion sensors if necessary. ☞ Setting the stop motion sensors to assure personal safety, Page 6/26
300	Collision protection front	The collision safeguard was triggered. The chassis has run into an obstacle.	Remove obstacle. Move chassis away from the obstacle. Check the limit switches; reset if necessary. ☞ Adjusting the collision safeguards on the chassis, Page 6/62
301	Collision protection rear	The rear collision safeguard was triggered. The chassis has run into an obstacle.	Remove obstacle. Move chassis away from the obstacle. Check the limit switches; reset if necessary. ☞ Adjusting the collision safeguards on the chassis, Page 6/62
302	Collision prot. take-off unit left or saveguard left side	The take-off unit has run into an obstacle.	Remove obstacle. Move take-off unit away from the obstacle. Adjust the limit switches. ☞ Adjusting the collision safeguards on the take-off unit, Page 6/22 Position slider on the duct not detected. B15 proximity switch. ☞ Setting positions for the bale groups, Page 6/63

Code	Designation Reaction/consequences	Cause	Remedy
303	Collision prot. take-off unit right or saveguard right side	The take-off unit has run into an obstacle.	Remove obstacle. Move take-off unit away from the obstacle. Adjust the limit switches. ☞ Adjusting the collision safeguards on the take-off unit, Page 6/22 Position slider on the duct not detected. B15 proximity switch. ☞ Setting positions for the bale groups, Page 6/63
304	Drive pulses missing	The control unit either does not detect the driving pulses or it detects the wrong driving pulses.The brakes do not release.	Profiled sheet is bent. ☞ Setting proximity switches for length measurement, Page 6/65 Check the wiring according to the electrical schematic. Replace the B 14 proximity switch.
305	Stop message inverter missing	Communication problems between the control unit and the converter. The converter is off or defective.	Check CAN bus. The CAN bus may have to be unplugged. Check the connection of the converter and the wiring of the K45 according to the electric circuit diagram. Replace converter if necessary.
306	Cam not detected	Proximity switch (B5, B15) or (B51, B52) for length measurement is defective or proximity switch setting is incorrect.	Adjust the proximity switch. ☞ Setting positions for the bale groups, Page 6/63 ☞ Setting proximity switches for length measurement, Page 6/65
307	Length measurement inverted	The “A” and “B” signals for the length measurement are interchanged.	Check the wiring of both proximity switches according to the electric circuit diagram. Adjusting or replacing proximity switch ☞ Setting proximity switches for length measurement, Page 6/65
320	Swivel end position not reached	End position has not been reached	Check the rotary drive. Possibly reset or replace proximity switch. Check wiring. ☞ Setting proximity switches for the positioning of the rotating tower, Page 6/48
321	Pre signal missing	Advance signal is missing.	Check the rotary drive. Possibly reset or replace proximity switch. Check wiring. ☞ Setting proximity switches for the positioning of the rotating tower, Page 6/48

Code	Designation Reaction/consequences	Cause	Remedy
322	End signal missing	End signal is missing.	Check the rotary drive. Possibly reset or replace proximity switch. Check wiring. ☞ Setting proximity switches for the positioning of the rotating tower, Page 6/48
340	Bottom limit switch not reached	The lift drive is on for moving down. The lower limit switch was not reached within the time specified. The lift drive is blocked. The limit switch is defective.	Remedy the cause of the jammed lift drive. Check the functioning and wiring of the S52 limit switch according to the electrical schematic. You may have to replace either the motor or the limit switch.
341	Top limit switch not reached	The lift drive is on for moving up. The upper limit switch was not reached within the time specified.	Remedy the cause of the jammed lift drive. Check the functioning and wiring of the S51 limit switch according to the electric circuit diagram. You may have to replace either the motor or the limit switch.
342	Braking distance lift drive too long	Braking distance for the lift drive is inappropriate. Is indicated if the braking distance is too long. The machine is stopped immediately.	Readjust the brakes of the lift drive. ☞ Adjust the brake of the lift drive, Page 6/50
343	Lift pulses are missing	The lift drive is running yet not pulses are read.	Check the settings and wiring of the B 55 proximity switch according to the electrical schematic. Adjust proximity switch; replace if necessary. Does the LED on the input module respond? Replace the input module.
344	Both lift limit switches actuated	Both limit switches for the lift were pressed at the same time.	Check the functioning and wiring of the S 51 and S52 limit switches. You may have to replace the limit switch.
345	Target hight not reached	The take-off unit does not reach the height required.	Check the lift drive connections and wiring according to the electrical schematic. Check the proximity switch for height positioning. Replace counter module (CM 211).
346	Direction change lift counter	There is a problem with the lift count.	Check the CAN bus connection. The module A21 (CM211) may be defective; replace.

Code	Designation Reaction/consequences	Cause	Remedy
347	Lift brake monitoring while drive is stopped	The control unit detects lift pulses even though the drive is not running.	Check the settings for sensor B55. Check the brakes for the lift drive and readjust if necessary. ☞ Adjust the brake of the lift drive, Page 6/50
348	Lift brake monitoring while drive is running	The control unit does not detect lift pulses even though the drive is running.	Check the wiring of the brakes for the lift drive according to the electrical schematic.
349	Lift brake failed	The control unit receives lift signals even though the drive should have stopped.	Check the brake settings of the lift drive. Check the wiring of the contactors K51 - K54 according to the electrical schematic.
350	Lift drive too fast	Lift drive is running at fast rather than slow speed. The lift motor connection is faulty.	Check the functioning and wiring of the K53 and K54 contactors according to the electrical schematic. Check the lift motor connection for a loose contact.
351	Lift drive too slow	Lift drive is running at slow speed rather than fast speed. Motor is not running in 3 phases.	Check the functioning and wiring of the K53 and K54 contactors according to the electrical schematic. Lift count defective. Check the lift motor connection for a loose contact.
352	Lift brake monitoring	The lift drive does not run at the speed required.	Check the functioning and wiring of the brakes for the lift drive according to the electrical schematic.
353	Lift drive is running incorrectly	Connected incorrectly.	Check wiring.
360	Flap inner end position not reached	The swiveling flap in the take-off unit is jammed and cannot be extended or the limit switch is defective.	Remedy the jammed swiveling flap. Check the settings and wiring of the S 81 limit switch according to the electrical schematic. You may have to replace the limit switch.
361	Flap outer end position not reached	The swiveling flap in the take-off unit is jammed and cannot be extended or the limit switch is defective.	Remedy the jammed swiveling flap. Check the settings and wiring of the S 81 limit switch according to the electrical schematic. You may have to replace the limit switch.
362	Flap does not run in	The cylinder is not moving from its position.	Check the functioning and wiring of the M 8 cylinder according to the electrical schematic. Check the wiring of the K 470 and K 480 relays. Test the R1 surge current limiter (150 ohms). You may have to replace the M 8 cylinder.

Code	Designation Reaction/consequences	Cause	Remedy
363	Flap does not run out	The cylinder is not moving from its position.	Check the functioning and wiring of the M 8 cylinder according to the electrical schematic. Check the wiring of the K 470 and K 480 relays. Test the R1 surge current limiter (150 ohms). You may have to replace the M 8 cylinder.
364	Both flap limit switches actuated	Both limit switches S 81 and the S 82 have been tripped.	Check the wiring and functioning of the S 81 and S 82 limit switches according to the electric circuit diagram. You may have to replace the limit switch.
380	Roller nominal rpm not reached	The take-off roller does not reach the nominal speed.	Check the take-off roller for smooth running.
381	Take-off roller rpm too low	During operation the speed of the take-off roller falls to below 60% of the nominal speed.	Check the take-off roll for smooth running. Check the pulley diameter against the gearing plan. Turn main switch off and on again
382	Take-off roller rpm too high	The take-off roller speed is higher than the nominal speed.	Check the diameter of the drive pulley with the gearing plan. Turn main switch off and on again
383	Take-off roller does not stop	The take-off roller is braked too slowly.	Check the function and wiring of the contactors K43 and K44 against the electrical circuit diagram.
400	Distance of cams too small	The distance between two position cams is too small.	Increase the distance between the cams.
401	Clear all	No released bale group is available.	Lay down new bales.
402	Pressure monitoring	The vacuum in the channel outlet is too low.	Establish the reason for the vacuum at the duct outlet being too low. Remedy the problem. Check the operation and wiring of the S 20 pressure monitor according to the electrical circuit diagram. Restart and wait until the pressure has built up.
500	External Interrupt	The input signal to the operating unit for an arbitrary external malfunction drops out.	Check external signal. Check connection in operator panel.

2.2 Warning

Code	Designation Reaction/consequences	Cause	Remedy
550	Braking distance lift drive too long	The brake for the lift drive is not functioning correctly.	Adjust the brake the next time maintenance work is performed. ☞ Adjust the brake of the lift drive, Page 6/50
551	Take-off roller rpm drops	The take-off roller is overloaded.	Reduce the take-off depth for the take-off unit. (Infeed.) Examine the teeth of the take-off roller for wear.
552	Take-off roller runs not allowed	Even though the relay has dropped out, pulses are still being sent. The take-off roller is not being slowed down.	Check the circuitry of the take-off roller.
553	Ethernet module missing	Ethernet module missing.	Install Ethernet module or avoid programming for a network. ☞ 42.1, Page 2/67
560	Bale group finished	Take-off process complete for a bale group.	Prepare new bales
561	Bale group nearly finished	Take-off process almost complete for a bale group.	For the corresponding setting in the data screen, the signal lamps flash. ☞ 41.1, Page 2/63
562	Pressure monitoring	The vacuum has dropped below the minimum acceptable value.	Determine why the vacuum has dropped.

2.3 Maintenance warning

Code	Designation Reaction/consequences	Cause	Remedy
600	Change battery	The battery voltage is too low.	☞ Change battery of control system, Page 6/74 Insert new battery.
601	Braking distance lift drive	Brakes are worn.	☞ Adjust the brake of the lift drive, Page 6/50
602	Length sensor out of tolerance	Proximity switches are not set correctly or are defective.	Adjust or replace the proximity switches ☞ Setting proximity switches for length measurement, Page 6/65

3 Error not displayed

3.1 CAN hub EX470

3.1.1 LED "status" on module EX470 blinks green rapidly

Cause	Remedy
Initialisation phase or the data were not received within a prescribed time	Checking CAN bus. Module may need replacement.

3.1.2 LED "status" on module EX470 lights up orange

Cause	Remedy
Outputs are defective	Replace module.

3.1.3 LED "status" on module EX470 blinks orange

Cause	Remedy
Voltage on one of the IO modules not in order.	Check the supply voltage of the I/O module.

3.1.4 LED "status" on module EX470 blinks orange rapidly

Cause	Remedy
The outputs are drawing to much power.	Check the consumer units at the outputs of the module. Possibility of a short circuit.

3.2 Combination module CM211

3.2.1 Individual LED "I/O" on module CM211 is not lighting up orange

Cause	Remedy
Supply voltage on module CM211 is not OK	Check supply voltage to the module.

3.3 Digital blend module DM465

3.3.1 LED "S#" on module DM465 blinks yellow

Cause	Remedy
One of the ouputs 1-8 on the blend module DM465 is not functioning correctly	Check inputs and outputs using the LED's. ☞ Checking the digital blend module DM465, Page 6/82 Check the wiring of the outputs for a short circuit. Module may need replacement.

3.3.2 Left hand LED (V) of the 16 LED's on module DM465 lights up orange

Cause	Remedy
Supply voltage to module DM465 is not OK	Check supply voltage to the module.

3.3.3 LED "S#1" on module DM465 blinks yellow

Cause	Remedy
One of the ouputs 9-16 on the blend module DM465 is not functioning correctly	Check outputs using the LED's. ☞ Checking the digital blend module DM465, Page 6/82 Check the wiring of the outputs for a short circuit. Module may need replacement.

Part 6

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1 Explanation on this section of the Instruction Manual

What is Part 6 for?

Part 6 contains the detailed functions and work descriptions, such as „Description of building parts“, „Dismantling“, „Installing“, „Setting“ etc.

Reference is made in other parts of the Instruction Manual to these detailed descriptions.

What information is contained in Part 6 ?

For a certain component group, the necessary descriptions are given in the following order: Function description, Dismantling, Installing, Checking, Setting.

The special tools required are listed at the beginning.

The information regarding bolted connections is listed at the end.

When does Part 6 need to be consulted?

Information can be looked up in Parts 2-5, depending on the situation. In these parts, reference is made to the detailed function and work descriptions in Part 6.

2 Safety precautions

2.1 Safety precautions during dismantling

When tackling dismantling jobs it is necessary to take suitable safety precautions.

Switch off main switch Q10 and secure with padlock.
All jobs requiring these security measures are indicated by an appropriate symbol on the particular page.

2.2 Safety precautions during installation

Switch off main switch Q10 and secure with padlock.
All jobs requiring these security measures are indicated by an appropriate symbol on the particular page.

2.3 Safety precautions during adjusting jobs

When tackling adjusting jobs it is necessary to take suitable safety precautions.

2.4 Work safety for checking tasks

When tackling checking jobs it is necessary to take suitable safety precautions.

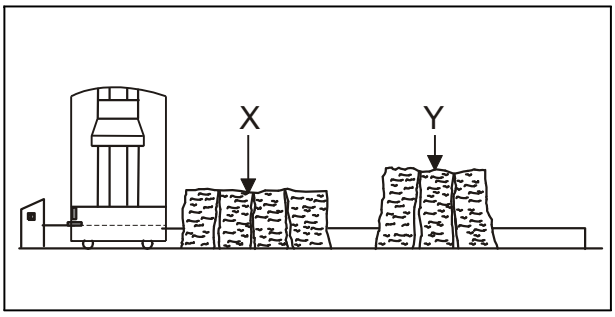
2.5 Safety precautions during measuring jobs

When tackling measuring jobs it is necessary to take suitable safety precautions.

3 UNIfloc

3.1 Description

Purpose: Strip the bales and feed the downstream machines with tuft material.



The rotating take-off roller moves across the bales and starts stripping from the top of the fed cotton or artificial fibre bales.

The removed tuft material is pneumatically transported to the next machine.

The tower can rotate through 180° and can thus take off bales on both sides of the machine.

Method of operation

- The take-off unit moves across the bale groups. If "Bale profiling" is on, the take-off unit adjusts to the bale heights.

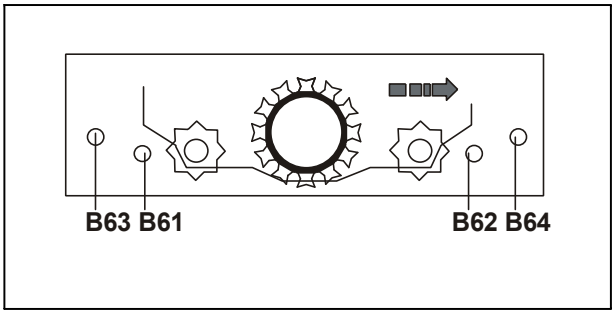
  ☞ Description Scanning sensors of the take-off unit, Page 6/23

Condition: First pass following a change of bales

An automatic scanning process occurs if new bales are laid down, or if partially processed bales are fed again.

During the process, the heights (X) and (Y) are measured.

Very little material is taken off during scanning.



Condition: Bale profiling (retracing of the bale profile for the different heights)

If "Bale profiling" is on, the take-off unit will automatically adjust to the various bale heights and will gradually compensate for the discrepancies.

For "Bale profiling" the light barriers (B61 und B63)as well as (B62 und 64) are required.

4 Processes

4.1 UNIfloc is delivering insufficient material, UNImix is running with no material

Production problems, Page 3/6

Sequence of steps

– Increase production
  10.2, Page 2/53

– Increase penetration factor
  Setting the rate of protrusion for the take-off roller, Page 6/36

– Activate run-in and run-out programs (start with basic program)
  41.2, Page 2/64

– If necessary, work with a separate program
  41.2, Page 2/64

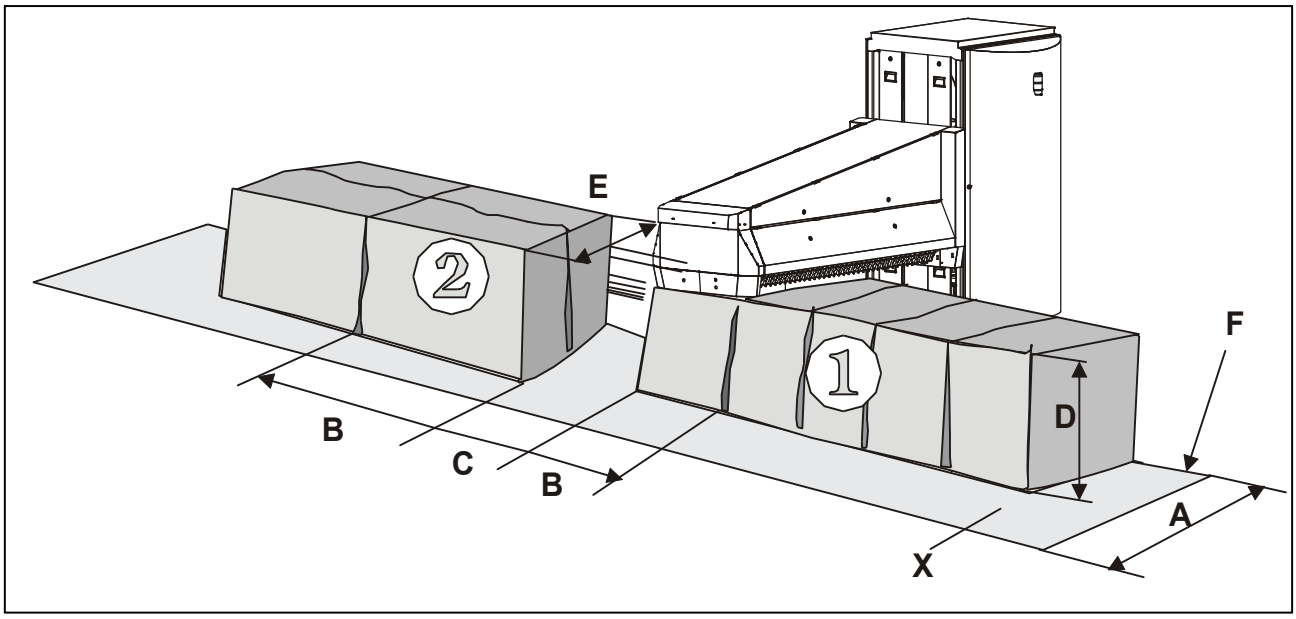
– Set Bale profiling to "Yes"
  41.3, Page 2/65

– Increase first take-off depth after scanning
  10.2, Page 2/53

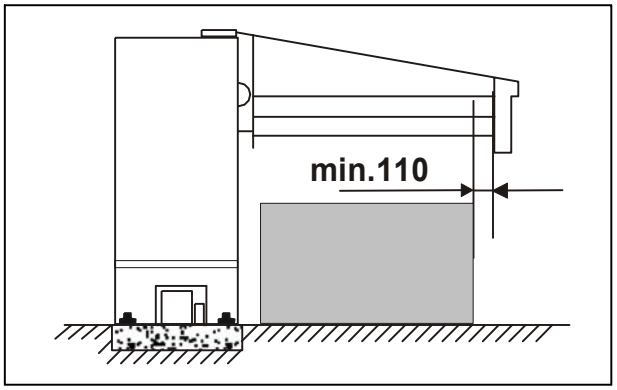
– If working with the program for the rotation of the rotating tower, it may be necessary to start with the new bale feed arrangement earlier. Start from approx. 1/3 of the bale height, and not when one side has been almost completely stripped.
  10.2, Page 2/53

4.2 Bale dimensions

Production problems, Page 3/6



Bale arrangement



– Arrange the bales lengthwise (2) or crosswise (1). The bales are to be arranged lengthwise or crosswise within the area marked " X". At least two bales must be available per bale group. Single bales are to be placed within another bale group. The external bales should always be placed at a slight angle, so that they support the other bales. Arrange the bales so that they touch the inner boundary line "F".

Bale arrangement, A 11: 1700-mm take-off unit

A	max. 1.6 m
B	Dependent on bale width
C	min. 1.3 m
D	max. 1.6 m
E	max. 1.4 m

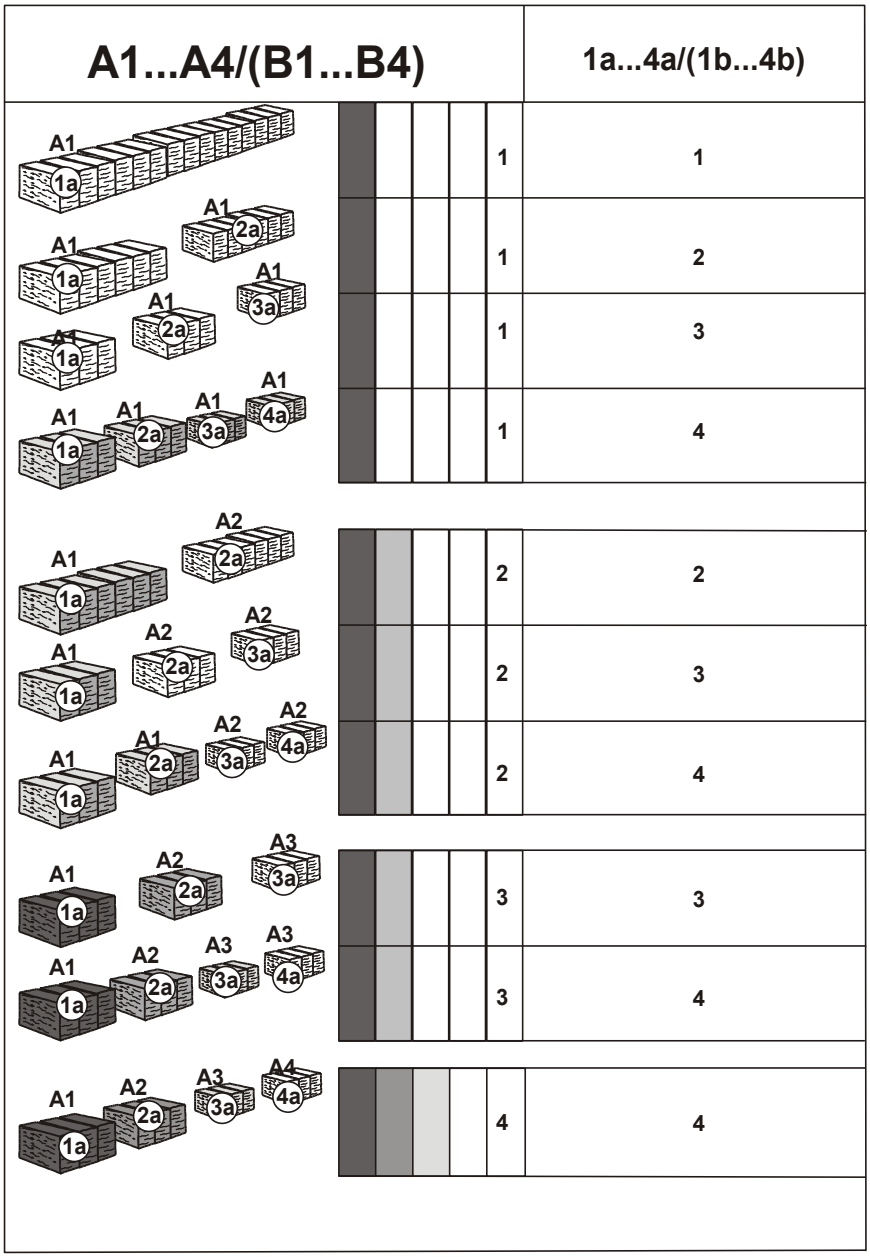
– Bale arrangement for the 2300-mm take-off unit.

Bale arrangement, A 11: 2300-mm take-off unit

A	max. 2.3 m
B	Dependent on bale width
C	min. 1.3 m
D	max. 1.6 m
E	max. 2.0 m

4.3 Possible assortments and bale groups

Adjusting machine to take in new raw material, Page 3/5
Assortment and bale group information, Page 3/5

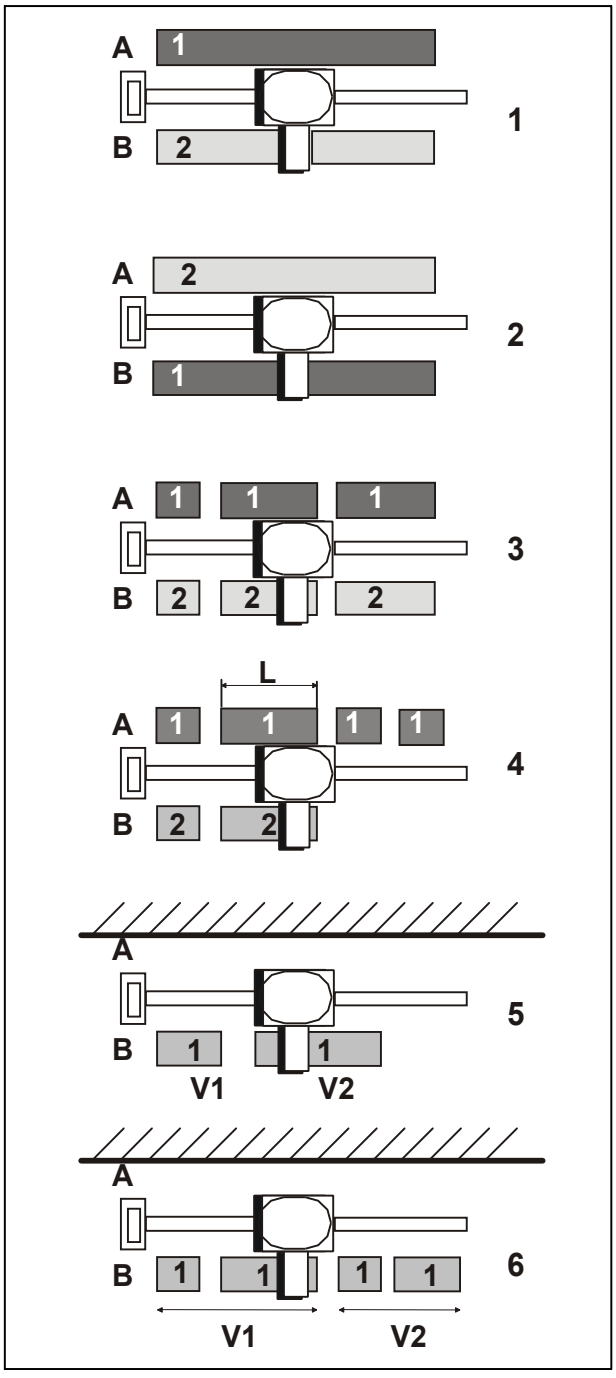


Sequence of steps

– “A1” to “A4” denote assortments on the left-hand side of the machine. “1a” to “4a” denote bale groups on the left-hand side of the machine.
Note: No more than 4 assortments and 4 bale groups are possible on each side of the machine.

4.4 Bale arrangement examples

Assortment and bale group information, Page 3/5



1 *Assortment 1 on left, assortment 2 on right. Same bale group length on both sides.*

2 *Assortment 2 on left, assortment 1 on right. Same bale group length on both sides.*

3 *Assortment 1 on left, assortment 2 on right. Different number of bale groups possible, but same bale group length "L".*

4 *Assortment 1 on left, assortment 2 on right. Different number of bale groups possible, but same bale group length "L".*

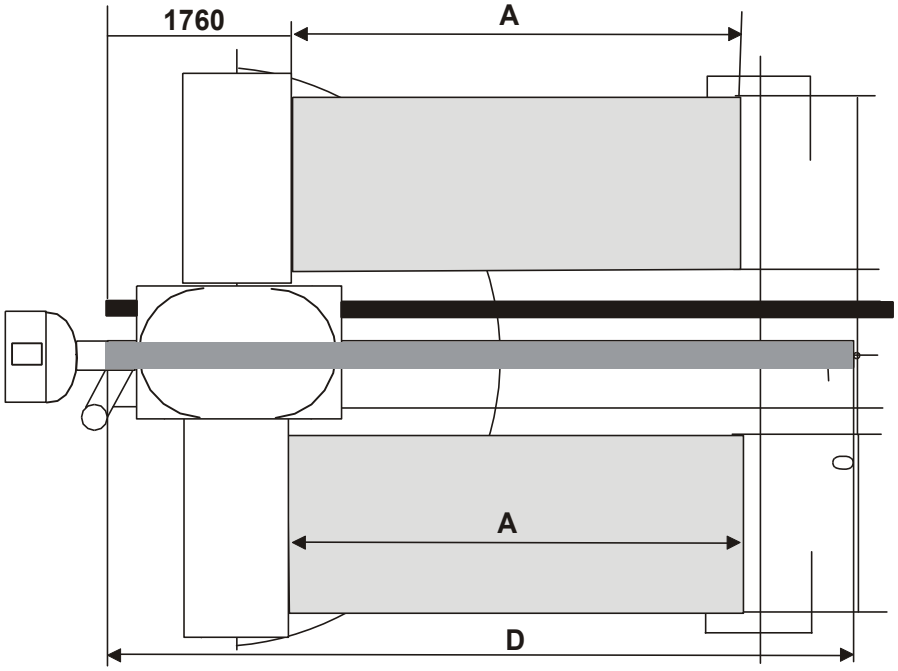
5 *The UNIfloc is positioned against a wall. Not possible to swivel tower.Assortment 1 on right or left. One bale group possible per feed. V2 is the reserve feed.*

6 *Assortment 1 on left or right. Up to 4 bale groups possible per feed. Adjust position sliders P0...P5.*

4.5 Determining the number of bales

Adjusting machine to take in new raw material, Page 3/5
Assortment and bale group information, Page 3/5

D	10.0	12.5	15.0	17.5	20.0	22.5	25.0	27.5	30.0	32.5	35.0	37.5	40.0	42.5	45.0	47.5	50.0	
1a	7.2	9.7	12.2	14.7	17.2	19.7	22.2	24.7	27.2	29.7	32.2	34.7	37.2	39.7	42.2	44.7	47.2	A
2a		8.5	11.0	13.5	16.0	18.5	21.0	23.5	26.0	28.5	31.0	33.5	36.0	38.5	41.0	43.5	46.0	
3a		7.3	9.8	12.3	14.8	17.3	19.8	22.3	24.8	27.3	29.8	32.4	34.8	36.3	39.8	42.3	44.8	
4a					13.6	16.1	18.6	21.1	23.6	26.1	28.6	31.1	33.6	36.1	38.6	41.1	43.6	



Setting aim: Form a combination comprising several bale groups.

Explanation

– In order to determine the number of bales, the dimensions and weights of the bales must be known.

– The combination is formed by assembling the bales or bale groups.

– Each bale group must be composed of a minimum of two bales.

– Single bales must be fed within another bale group, which is possible by evening out the height.

– The material lay-down length “A” is determined by the channel length “D” along with the number of bale groups implemented.

– The material lay-down length “A” can be read off from the table. The gap widths of 1.3 m between the bale groups have already been subtracted.

– The number of bales can be deduced from the information provided in the following chapter.

Calculating the number of bales (example)

	L (m)	B (m)	G (kg)	%	L / Q
1a	1.3	0.6	190	20	Q
2a	1.6	0.7	230	10	Q
3a	1.7	0.65	180	50	L
4a	1.4	0.8	200	20	Q

1a...4a *Bale groups*

L *Bale length*

B *Bale width*

G *Weight in kg*

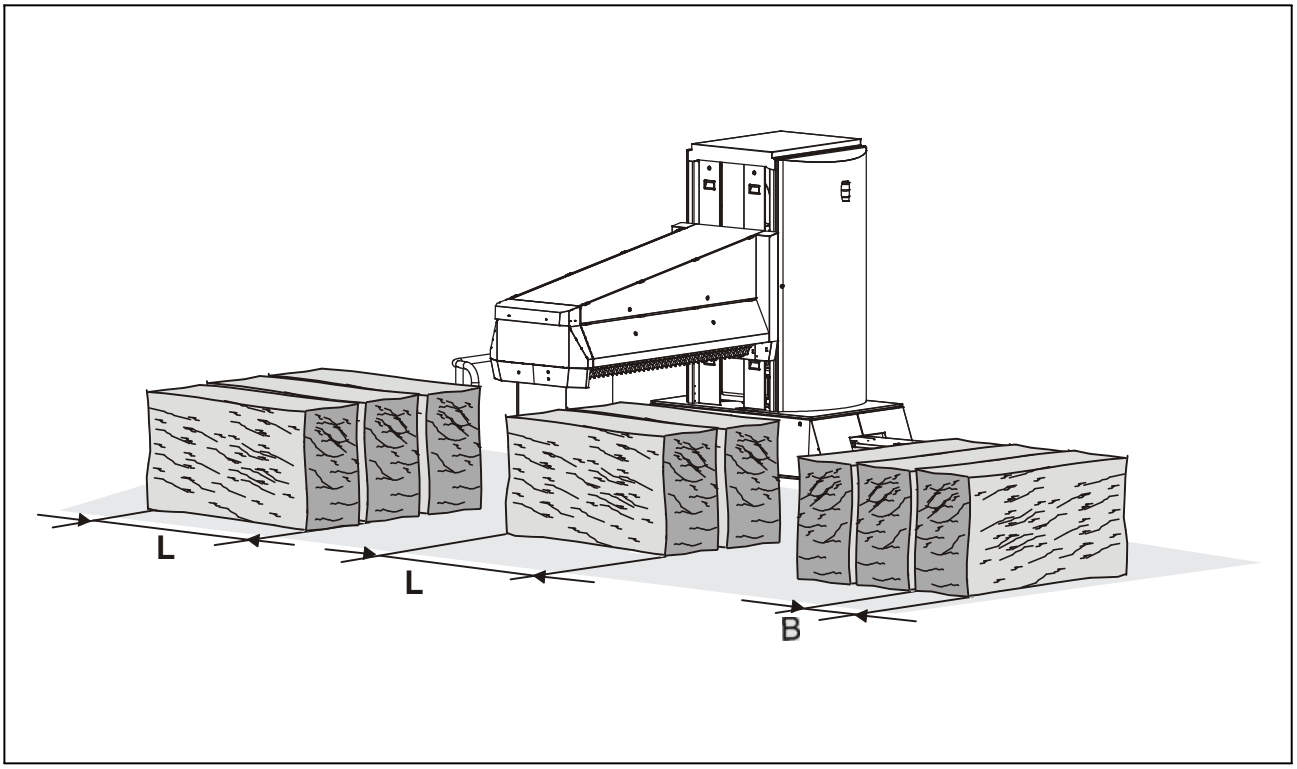
Q *Crosswise arrangement*

L *Lengthwise arrangement*

– The spinning mill has 4 different bale groups and wishes to combine these according to the proportions 20%, 10%, 50% and 20%.

– The duct length “D” of the UNIfloc A 11 - 1700 is equal to 40 m, implying a bale lay-down length “A” of 33.6 m.
Note: Firstly, the average length of a bale has to be determined.

Bales required on account of the lay-down length



– If a crosswise arrangement is used, the bale width “B” is required.

– For a lengthwise arrangement with two bales, the average bale length is: lay-down length (L) divided by 2.

– For a lengthwise arrangement with three bales, the average bale length is: lay-down length (L) divided by 3.

– Calculating the average bale width and the total number of bales.

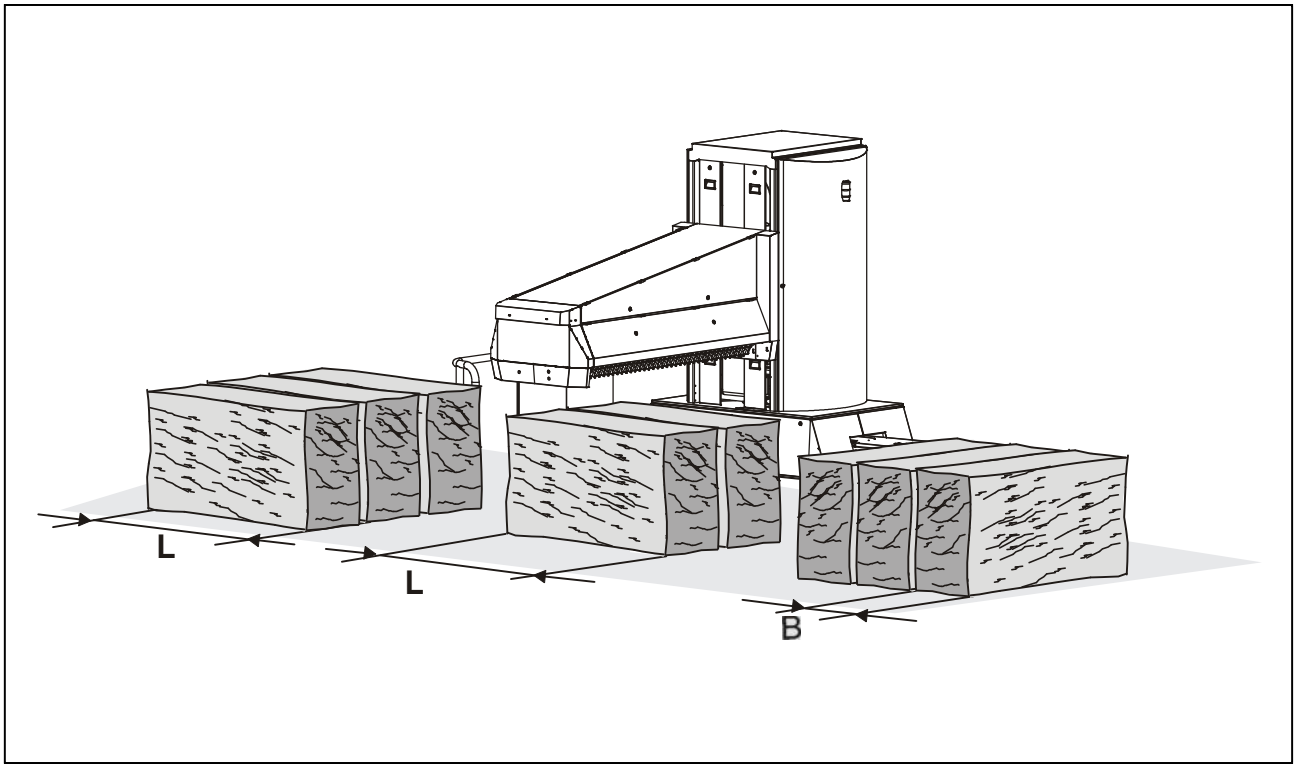
Average bale width

1a crosswise	0.6 m
2a crosswise	0.7 m
3a lengthwise	1.7÷2 = 0.85 m
4a crosswise	0.8 m
Average	2.95÷4 = 0.74 m
Total number of bales	(Lay-down length) 34 ÷ 0.74 = 46 bales

– Calculating the number of bales per bale group.

Number of bales per bale group

1a	46 ÷ 100% x 20% = 9.2 bales
2a	46 ÷ 100% x 10% = 4.6 bales
3a	46 ÷ 100% x 50% = 23 bales
4a	46 ÷ 100% x 20% = 9.2 bales



– Calculating the weights of the bale groups

Bale group weights

1a	9.2 x 190 = 1748 kg
2a	4.6 x 230 = 1058 kg
3a	23 x 180 = 4140 kg
4a	9.2 x 200 = 1840 kg
Total weight	8786 kg

– Checking the proportions.

Check of the %

1a) 100% ÷ 8786 x 1748	10.9 %
2a) 100% ÷ 8786 x 1058	12.0 %
3a) 100% ÷ 8786 x4140	47.1 %
4a) 100% ÷ 8786 x1840	20.9 %

– Rounding up or down to whole numbers of bales.

Rounding to whole numbers of bales

1a) 9.2 bales = 10.9%	Round down to 9 bales
2a) 4.6 bales = 12 %	Round up to 4 bales
3a) 23 bales = 47.5 %	Round up to 24 bales
3a) 9.2 bales = 20.9 %	Round down to 9 bales

– We are now in a position to calculate the effective bale group weights.

Effective bale group weights

1a	9 bales x 190 kg = 1710 kg
2a	4 bales x 230 kg = 920 kg
3a	24 bales x 180 kg = 4320 kg
4a	9 bales x 200 kg = 1800 kg
Total weight	8750 kg

4.6 Bale laydowns

4.6.1 Setting up the bale feed

Assortment and bale group information, Page 3/5

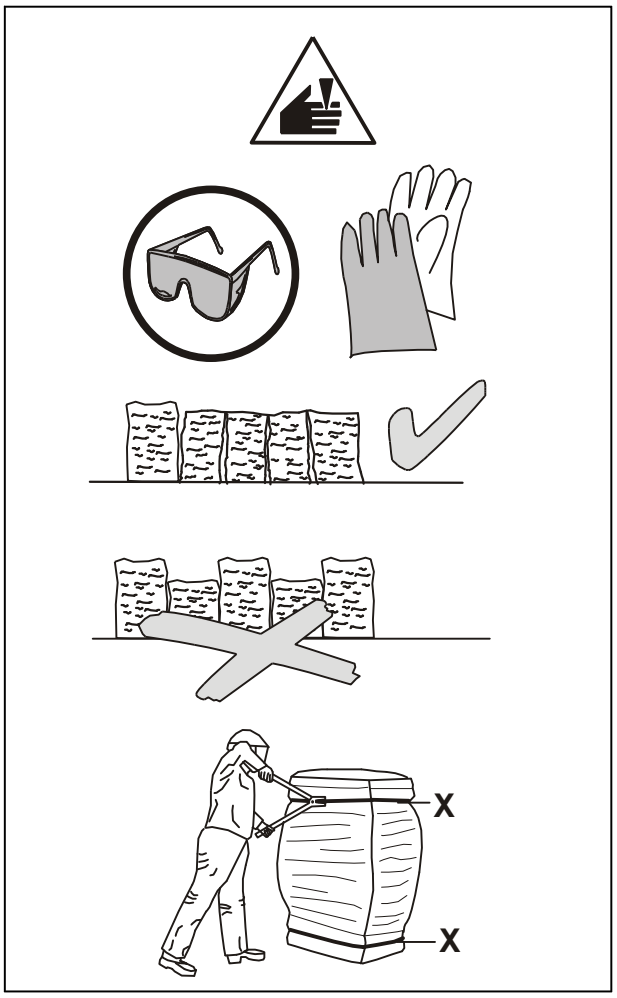
DANGER
Risk of injury when cutting and removing the steel bands.
Always wear head protection (helmet with visor) or safety goggles and gloves.

Preparatory work

– Precise information on arranging the bales into groups.

Bale arrangement examples, Page 6/10

Unpacking bales



– Do not remove the steel bands in the bale lay-down area.

– Do not remove the two outer steel bands (X) at this stage.

– Remove the bale packaging and dislodge any large clumps of dirt from the bales.

– Use a hydraulic trolley jack or a stacker truck (with rotary forks) to transport the bales to the UNIfloc.

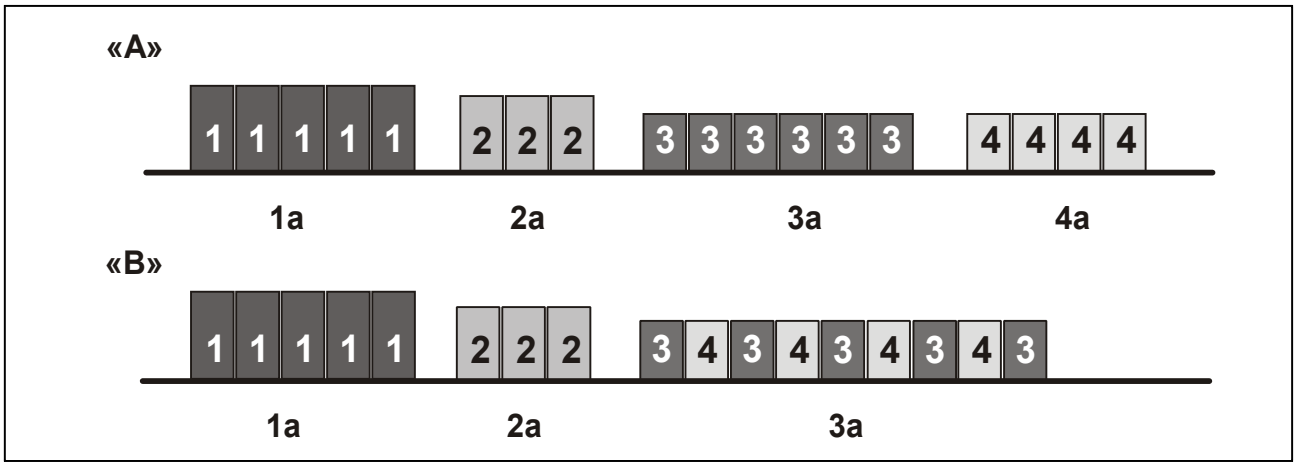
– The bales can be placed directly on the ground at the lay-down area or on the pallet.

  Note: Group together bales of similar height.

– Now remove the outer steel bands (X).

  Note: It is beneficial to even out the surface of the bales to some extent, as this will allow the desired production to be reached as quickly as possible.

Preparing bale groups

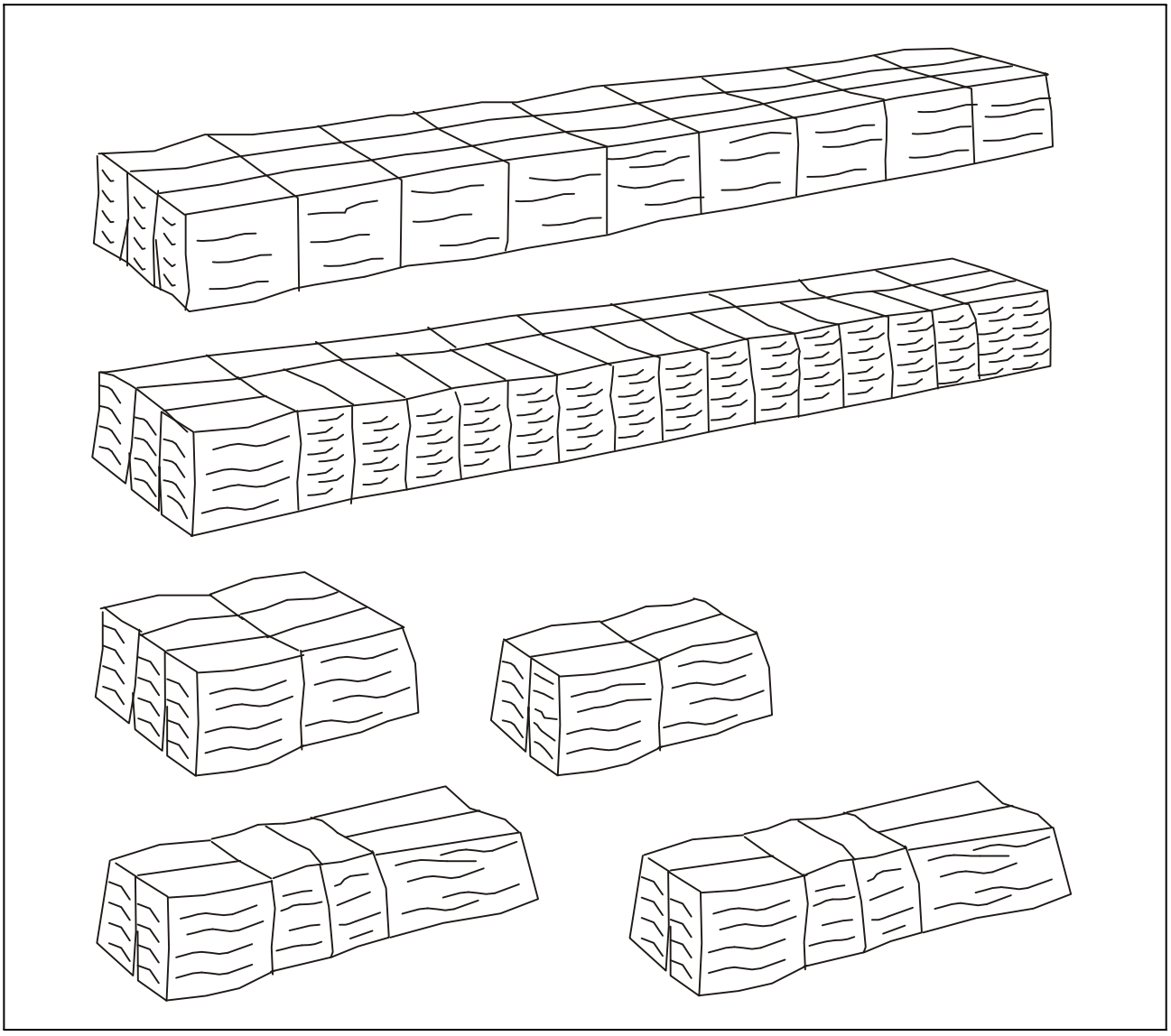


“A” *Bale groups consisting of bales of the same origin*

“B” *Bale groups consisting of bales of the same height*

– Bales of the same origin or the same height are to be assembled into a common group.
  Note: For bales of the same height, the bales are not arranged in order of origin, but alternately within the bale group. This arrangement has a positive effect on the blend ratio.

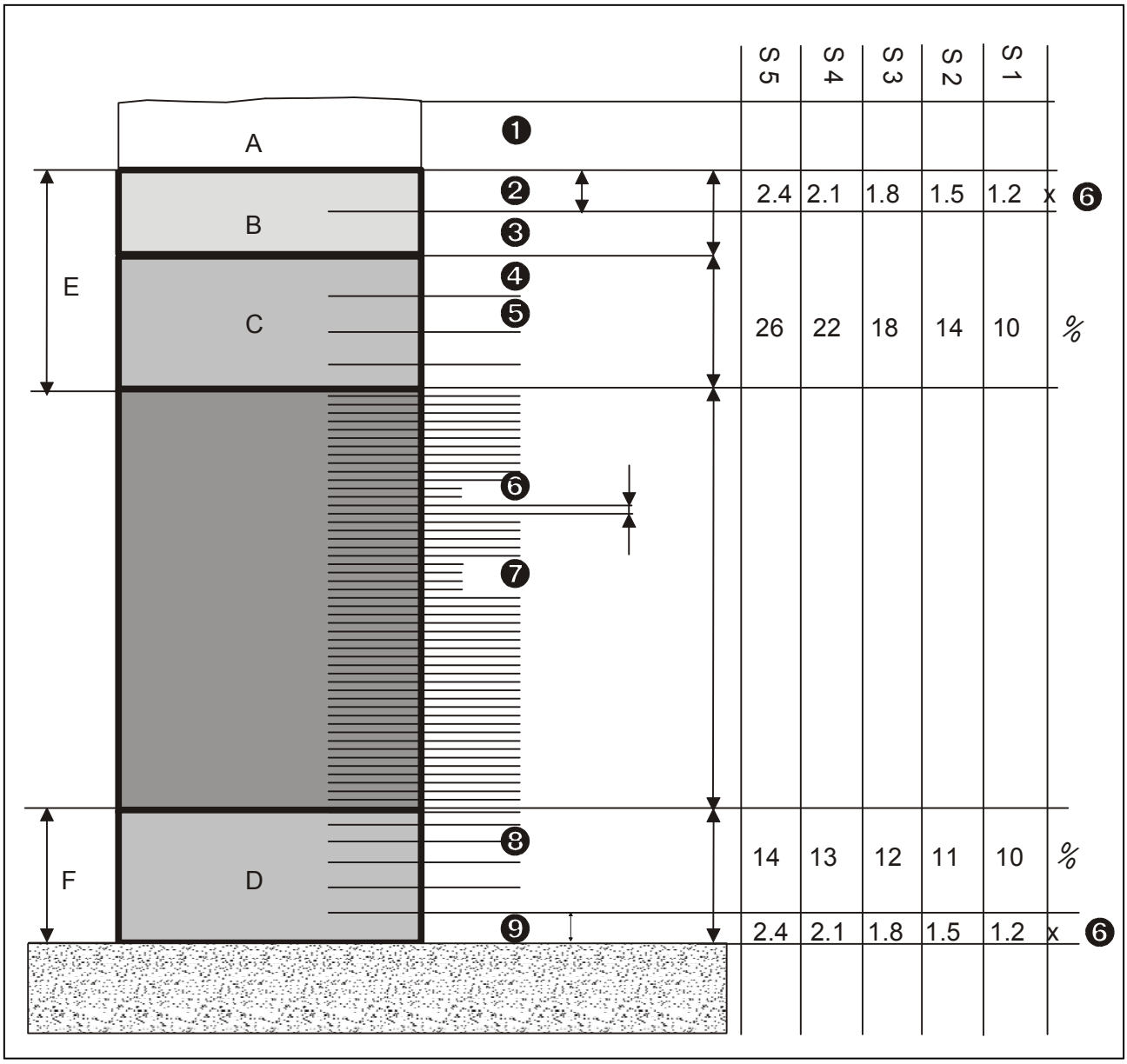
Bale arrangement (examples)



– The number of bales can be optimised to the space available (dependent on bale size).

4.6.2 Setting up the run-in and run-out programs

Adjusting machine to take in new raw material, Page 3/5
Production problems, Page 3/6



1 *Initial take-off depth for stack*

2 *Initial take-off depth*

3 *Number of passes for the bale heights with initial take-off depth*

4 *Decreasing number of passes for the bale heights*

5 *Take-off depth decreasing from the initial value to the normal value*

6 *Normal take-off depth*

7 *Number of passes for the bale heights with normal take-off depth*

8	*Increasing number of passes. Take-off depth increasing from the normal value to the final value.*
9	*Final take-off depth*
A	*Stack*
B	*Complete passes*
C	*Partial passes*
D	*Run-out program*
E	*Run-in program*
F	*Run-out program*
S 1	*Level 1 = bales very hard*
S2	*Level 2 = bales hard*
S3	*Level 3 = bales normal*
S4	*Level 4 = bales soft*
S5	*Level 5 = bales very soft*
%	*of the bale height*

The run-in and run-out programs control the take-off depth and compensate for different bale densities.

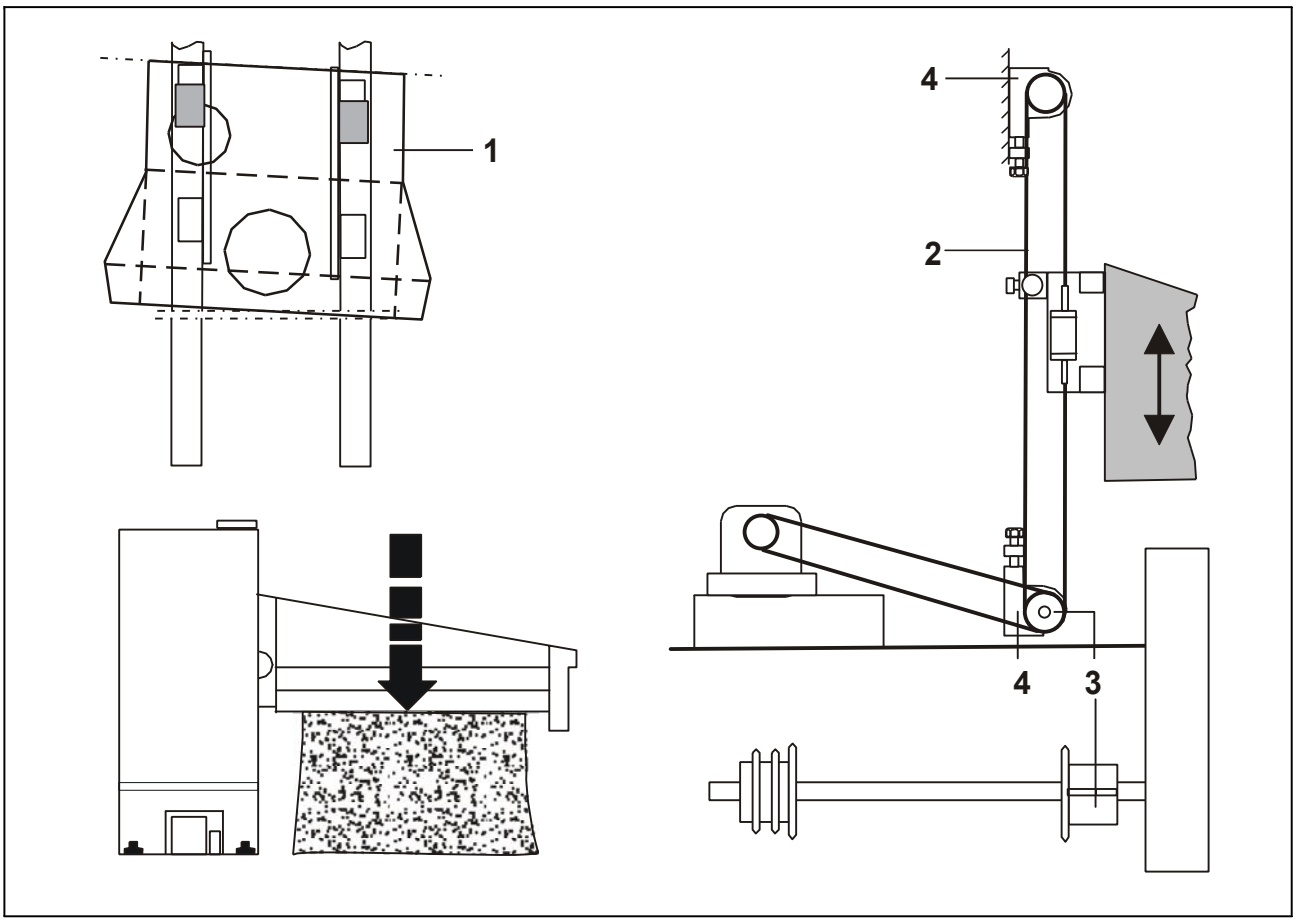
Setting aim: During the take-off process, the same production should be achieved over the whole bale height.

5 Take-off unit

5.1 Horizontally align the take-off unit

Mechanical settings, Page 3/7

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.
The sprocket (3) may only be loosened, if the take-off unit is fully supported by a base, such as bales.



Adjustment is only required, if the take-off unit (1) is not correctly aligned horizontally.

Sequence of steps

– **Prerequisite:** The bearing fixtures (4) may not be loosened or displaced. The take-off unit has been lowered on to the bales or an alternative means of support, e.g. pallets

  Move the chain (2) by adjusting the sprocket (3)and continue until the take-off unit is correctly aligned horizontally.

  Note: If necessary, the take-off unit is to be raised slightly using the forklift truck or card crane.

– Firmly tighten the sprocket bolts (3) using the prescribed torque.

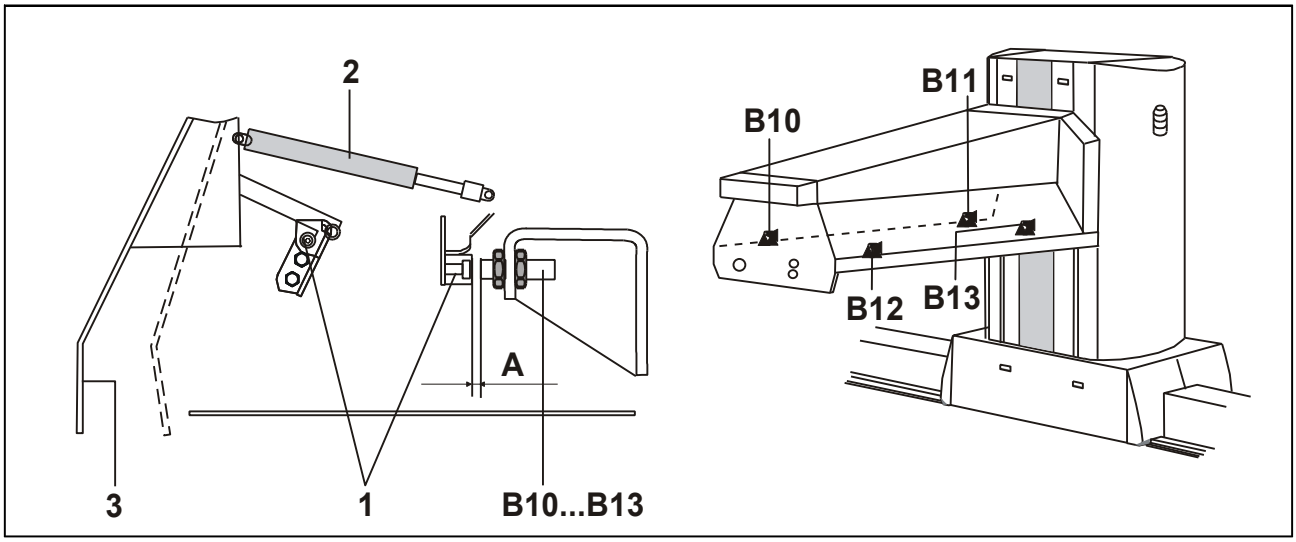
Sprocket (3)	50 Nm

5.2 Limit switches on the take-off unit

5.2.1 Covers and collision safeguard

5.2.1.1 Adjusting the collision safeguards on the take-off unit

Overview of the proximity switches, Page 3/10



The cover (3) is pushed towards the outside via gas shocks (2). If the take-off unit moves into an obstacle, the cover will be pushed towards the inside. The permanent magnet (1) will turn away from the proximity switch. The proximity switch will switch and the control system will turn off all the drives. If the covers (1) are opened, the permanent magnet will also turn away from the proximity switch. Consequently, the machine cannot start.
Setting aim: The proximity switches have to set correctly to ensure that the protective mechanism works properly.

Sequence of steps

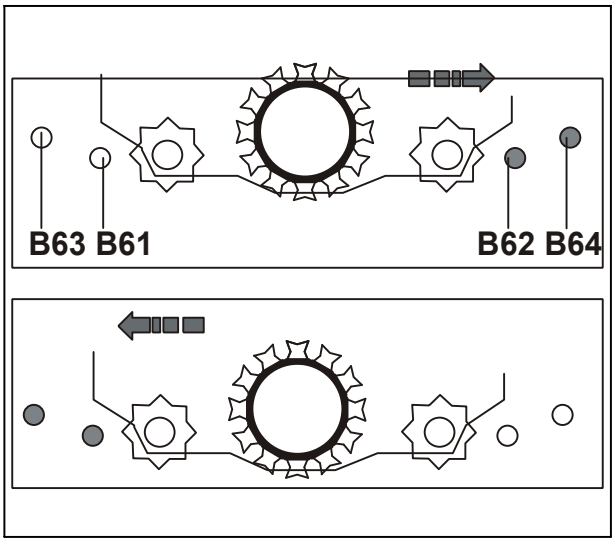
– The proximity switches have to be set to the following specifications (A).

Measure "A" for the collision safeguards	max. 5.0 mm

5.2.2 Scanning sensors of the take-off unit

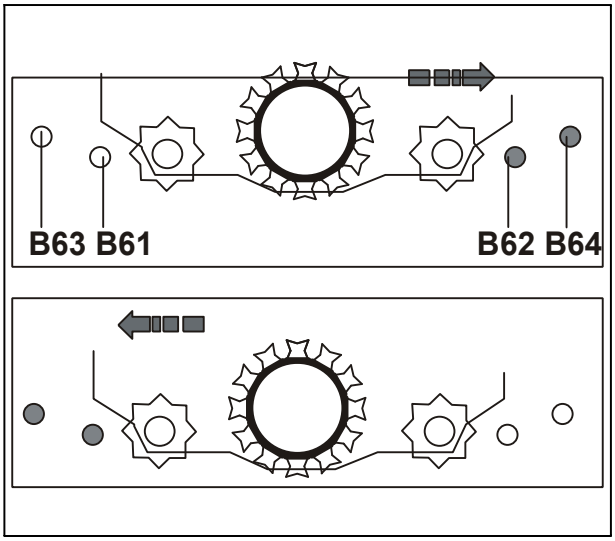
5.2.2.1 Description

Structure



"Bale profiling" requires 4 light barriers.

Purpose: The take-off unit automatically adjusts to the various bales.

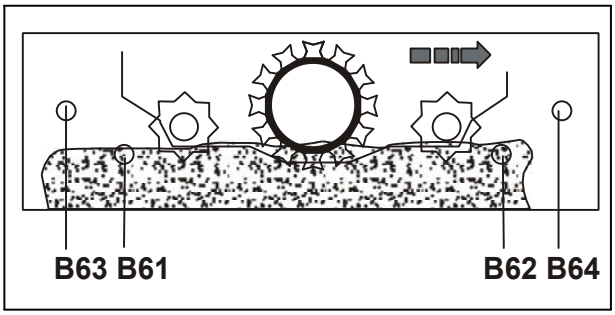


During the scanning process, the machine positions the take-off unit in such a way that the bottom light barrier B61 or B62 is always covered and the top light barrier B63 or B66 is always free. Failing this, a lifting motion is initiated.

If the light barrier B64 or B63 is covered, a slow lifting motion occurs.

Scanning is always performed at a rate of 9 m/min., regardless of the set drive speed.

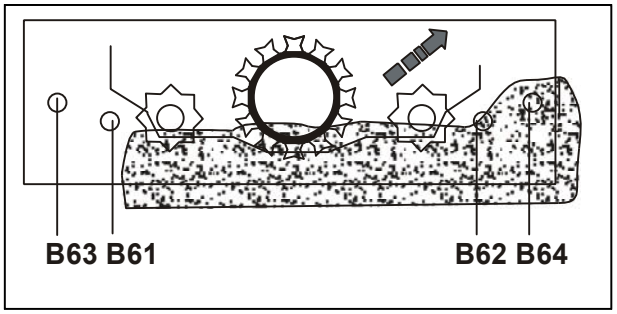
The following states are valid for one direction of motion.



Condition: Scanning with uniform bale lay-down height

The light barrier B61 B62 is covered.

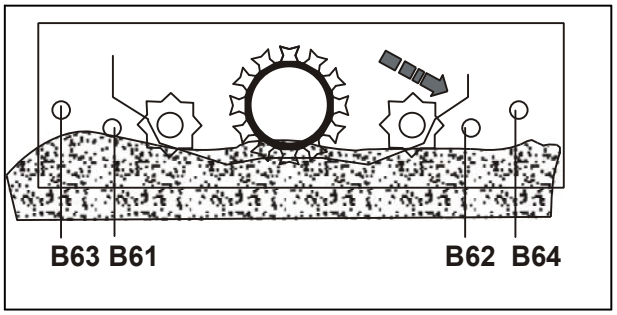
The light barriers B64 and B66 are free. Consequently, no lifting motion is initiated.



Condition: Scanning with large peaks in the lay-down.

The light barrier B64 is covered.

The take-off unit moves slowly upwards until the light barriers B64 and B63 are free again.



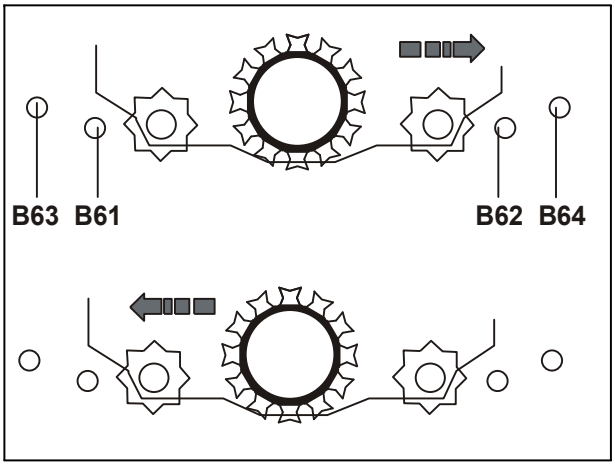
Condition: Scanning with large troughs in the lay-down.

The light barrier B61 B62 is free.

If all of the light barriers are free, the take-off unit moves slowly downwards until one of B61 and B62 is again covered.

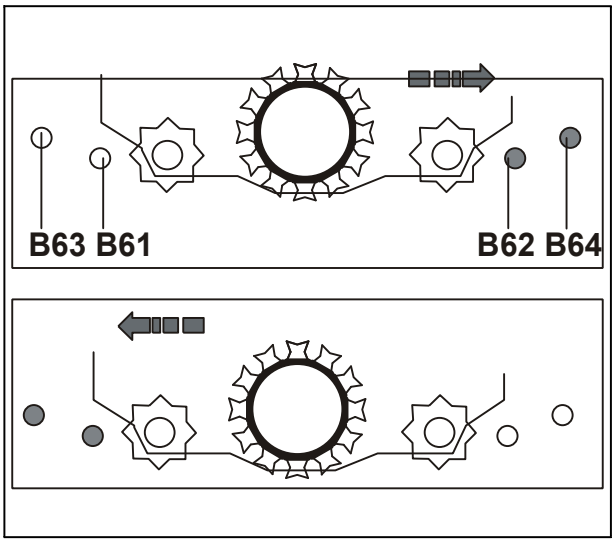
5.2.2.2 Adjusting the light barriers on the take-off unit

Overview of the proximity switches, Page 3/10



The light barriers are needed for "Bale profiling".

Sequence of steps



- The sender and the receiver are incorporated in the same housing. The light beam is reflected by the reflector.
- The holders should be aligned in such a way that the light beam strikes the centre of the reflector.
- The LED lights up if the receiver correctly detects the ray of light.
- The LED flashes if the light beam is not reflected sufficiently.
- The LED goes out if the light beam is broken.

81.1, Page 2/68

5.2.3 Stop motion sensors

5.2.3.1 Setting the stop motion sensors to assure personal safety

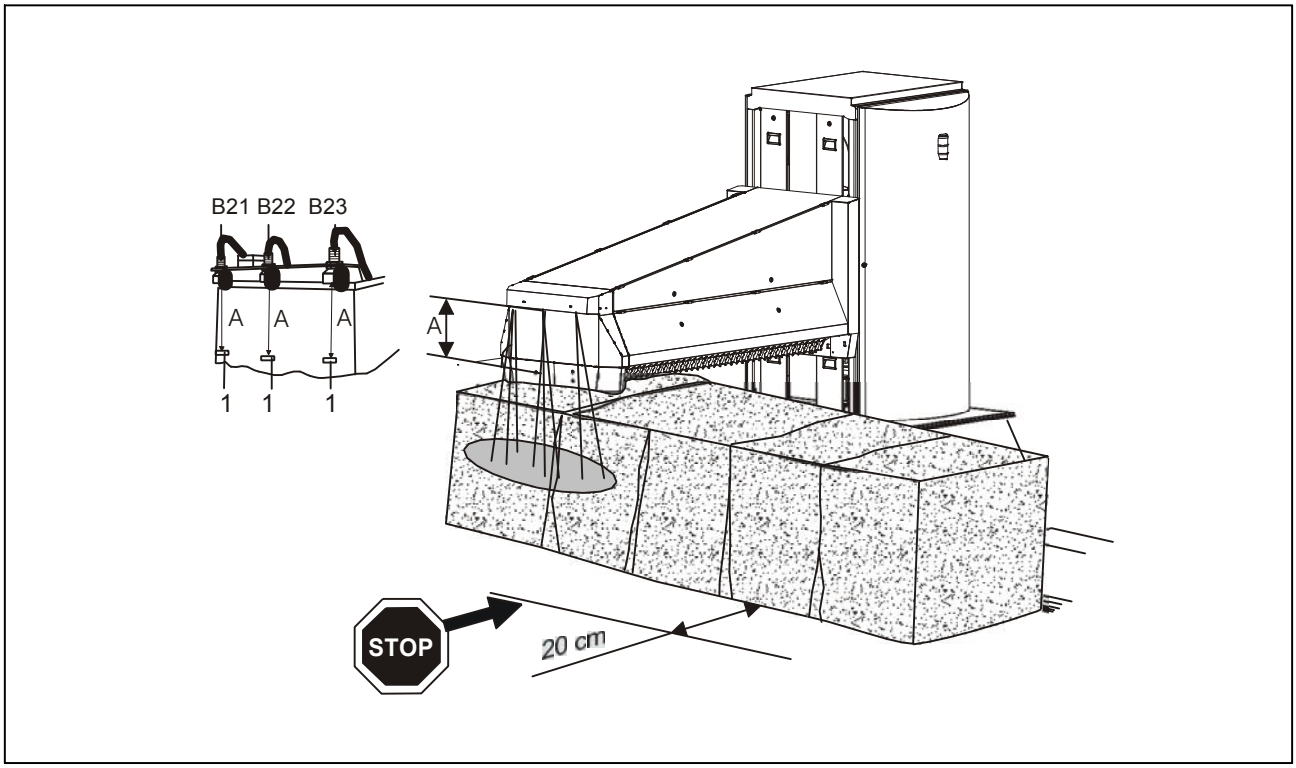
Production problems, Page 3/6

Overview of the proximity switches, Page 3/10

Setting aim: All sensors have to be set at the same A parameter.

Measure "A" of the stop motion sensors	360 mm

Sequence of steps



– When you set the sensors make sure that both green "OK" LEDs stay lit.

  Note: If an LED of a sensor does not light up, the reflector (1) of the respective sensor has to be adjusted. The settings can be checked via the LEDs.

  Display Stop motion sensors' LED display on the take-off unit, Page 2/26

– If no setting proves to be successful, you will have to replace the sensor.

5.3 Channel and swiveling flap

5.3.1 Swiveling pipe in the take-off unit

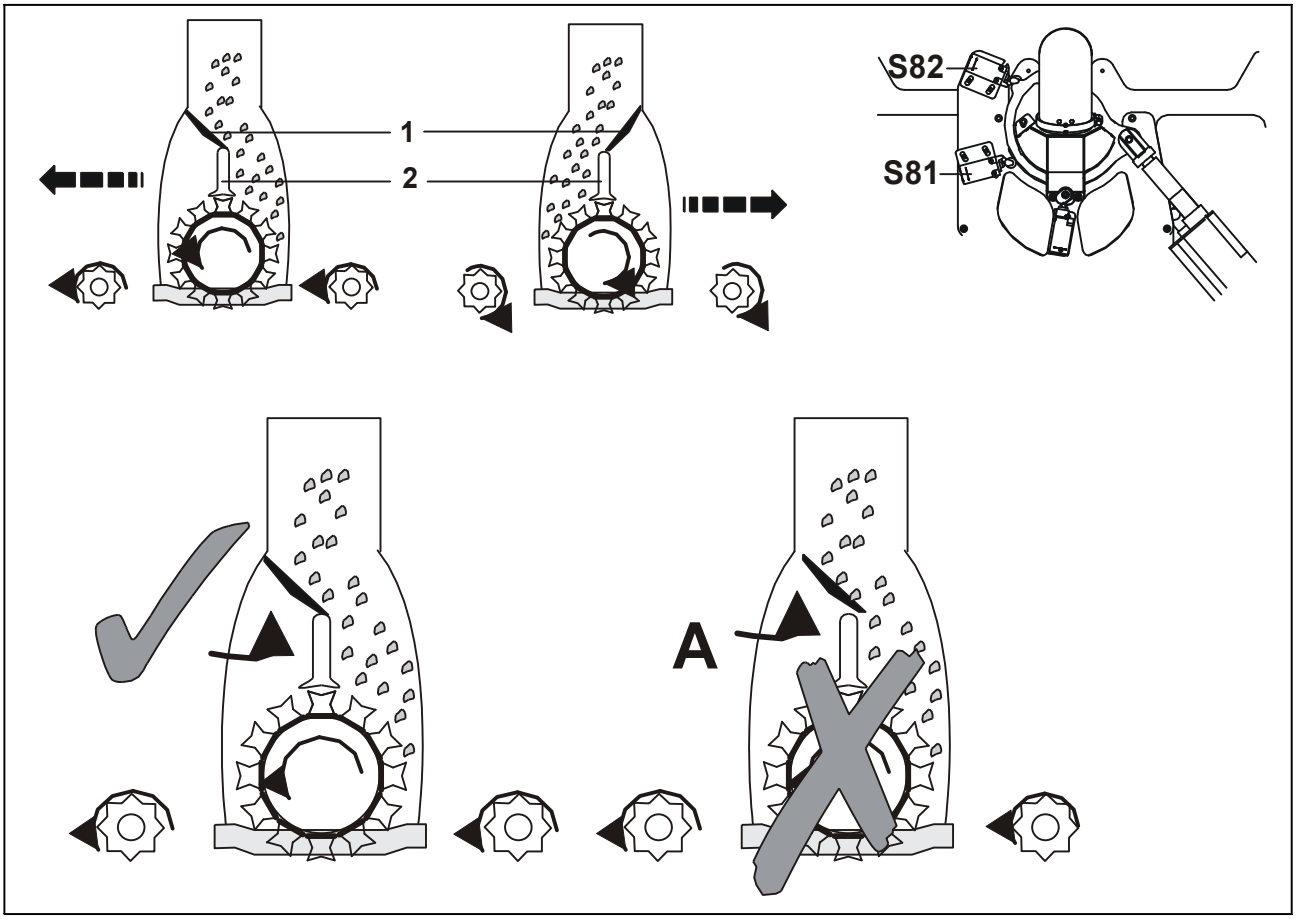
5.3.1.1 Adjusting the swiveling flap in the take-off unit

Overview of limit switches, Page 3/9

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

If the direction of rotation of the take-off roller changes, the position of the swiveling flap will change as well. If the swiveling flaps are in the corresponding position, the limit switches (S81/S82) will turn off the drive of the lifting cylinder.

Sequence of steps



– The swivelling flap must rest against the inner wall at both end positions (A) on the left- and right-hand sides.

– With the fork head detached, move the swivelling flap (2) to both end positions and set the respective limit switch at the trip cam, until it is triggered.

Note: Extend the completely retracted piston rod by half a rotation and then re-attach the fork head.

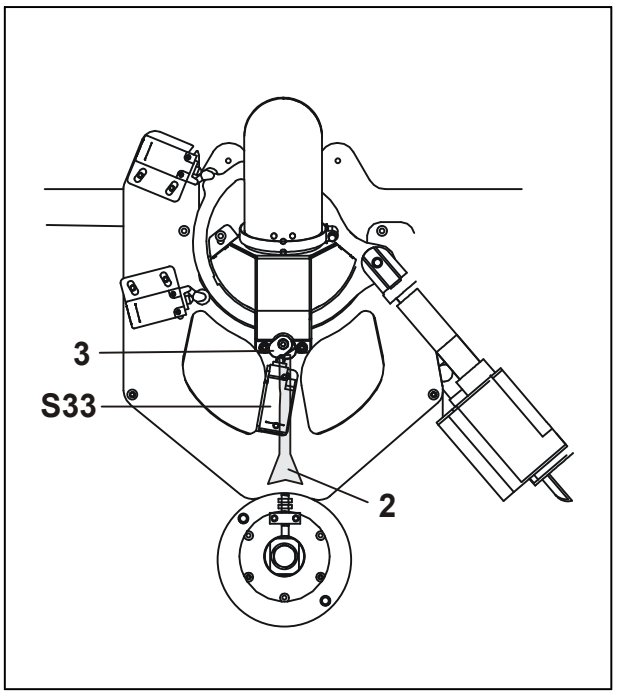
5.3.1.2 Setting the foreign matter monitoring

Overview of limit switches, Page 3/9

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

Foreign matter (e.g. a wire) may stray into the exhaust air flap (2) and trigger the limit switch (S33). This would turn off all drives immediately.

Setting the limit switches



– Both trip cams (3) are to be set in such a way that the limit switch wheel is unobstructed if the oscillating plate (2) is suspended freely.

– You can adjust the response sensitivity via the trip cams.

  Note: The degree of sensitivity of the trip cams should not be set too high to avoid unnecessary stops of the machinery.

5.4 Take-off roller

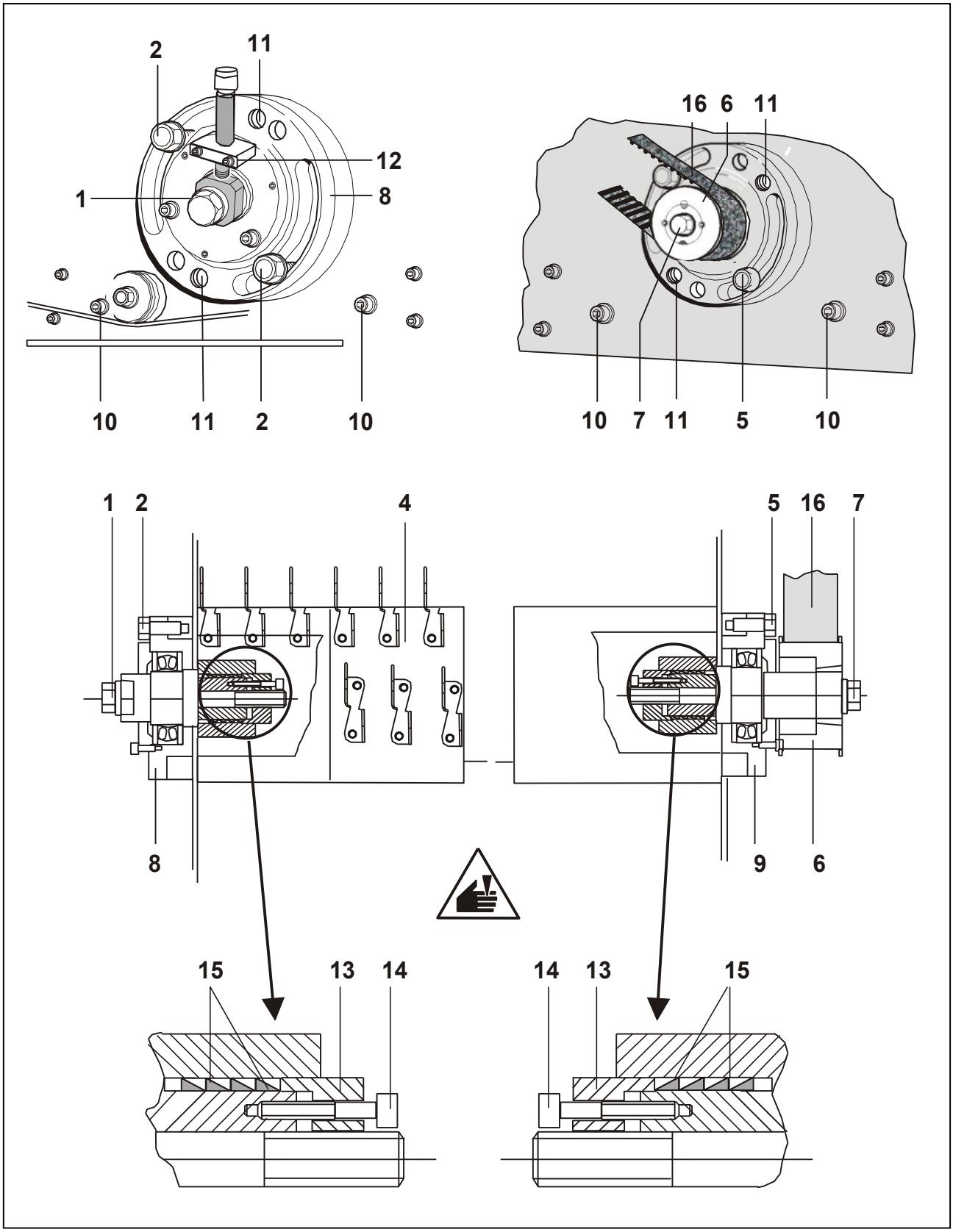
5.4.1 Replacing take-off roller

Replacing parts, Page 3/8
Remove the take-off roller, Page 6/29
install the take-off roller, Page 6/31

5.4.2 Remove the take-off roller

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

Sequence of steps



– Remove the two bolts (10) on both sides of the take-off unit, and remove the grate.

– Remove the toothed belt (16) and the toothed-belt pulley (6).
– Loosen the screws (1) and (7) slightly and then loosen the tensioning elements by tapping on the head of the screw.
– Unfasten the proximity switch support (12).
– Remove the bolts (2)and (5).
– Position the take-off roller underneath (using the pallet and forklift).
  Note: Take-off roller weight (1.6 m = 58 kg) (2.2 m = 80 kg)
– Screw the bolts (2) and (5) into the thread (11) and force off the eccentric bushes (8) and (9) with the bearings.

5.4.3 install the take-off roller

Sequence of steps

– Move the take-off roller into the take-off unit and push in the eccentric bushes (8) and (9), together with the bearings and shaft pins (1) and (7), on both sides.

  Screw connection
  Take-off unit

Thread dimension	M 16
torque	120 Nm

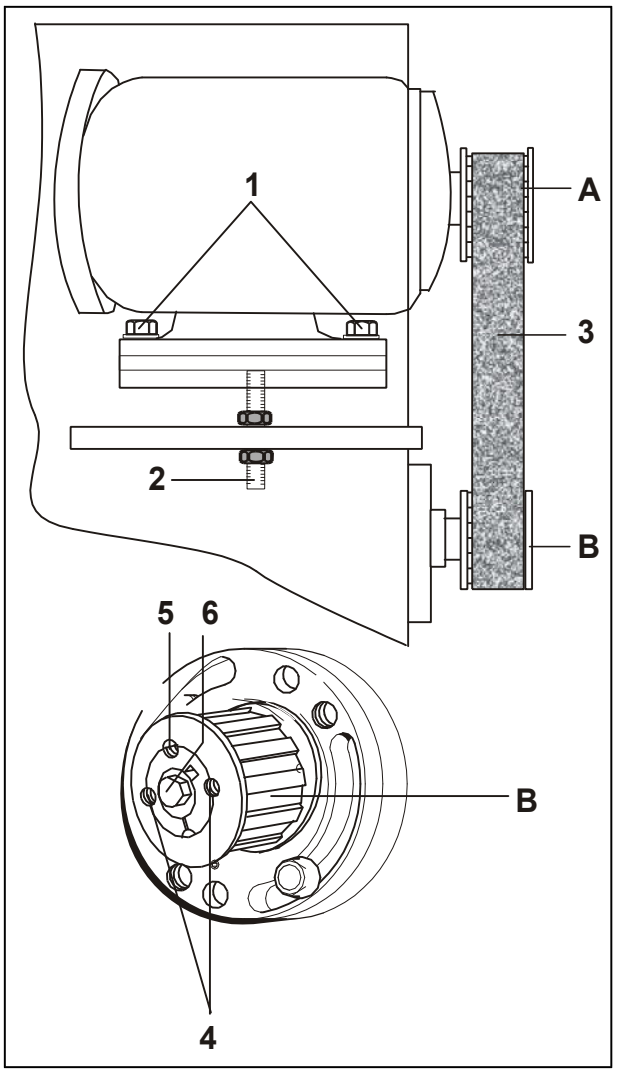
– Adjust the reach-through equally on both sides and tighten the screws (22) and (5).
– Mount the toothed-belt pulley (6) and the toothed belt (16), and tighten.
– Install the grid
  Note: If for some reason the tensioning elements (15) have to be removed, then the bolt (14) must be loosened and the clamping piece (13) removed. When reinstalling, pay very close attention to the position of the tensioning elements (15). Tighten the bolt (14) until the thread makes contact with the axle pins, but the clamping element (13) still has some clearance.

5.4.4 Take-off roller drive

5.4.4.1 Changing the speed of the take-off roller

Adjusting machine to take in new raw material, Page 3/5

Sequence of steps



– Move UNIfloc to its P0.

– Move the take-off unit to 3/4 of the height.

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

– Fold up or remove the covers on the left hand side of the take-off unit.

– Undo the tension screw (2) and remove the toothed belt (3).

– To pull off the belt pulley (A) and (B) unscrew both the bolts (4).

– Screw one of the two bolts (4) into the thread (5) until the taper lock comes undone.

– Do not undo the bolt (6).

– Install in reverse sequence. Screw in the bolts at (4).

Note: Do not grease or oil the components of the clamping bush for the belt pulley and the drive shaft.

– Align the belt pulleys (A) and (B) to one another and firmly tighten the bolts (4) (lightly oiled) using the prescribed torques appropriate to each toothed-belt pulley.

Toothed-belt pulley

Toothed-belt pulley: 34 / 36 / 38 Teeth	20 Nm
Toothed-belt pulley: 40 / 44 Teeth	30 Nm

– Fill the holes that are used to press off the bearing with grease, to prevent foreign matter from entering.

– After 60 minutes of running time, the bolts (4) are to be re-tightened.

– Use the bolt (2) to moderately tighten the belt and tighten the bolt (1).

  Note: Belts that are too tight will produce a howling sound. Belts that are too slack will skip or make a banging sound during start-up.

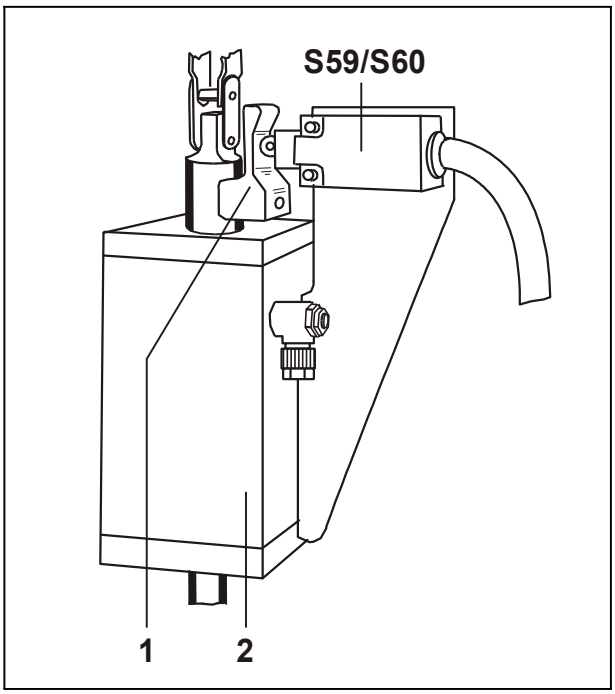
– Install and/or close the covers.

– Restart UNIfloc from its P0.

5.4.4.2 Setting the overload protection for the take-off unit

Overview of limit switches, Page 3/9

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.



A spring assembly (2) has been installed between the attachment point for the take-off unit and the lift chain. If the take-off unit encounters an obstacle during descent or if it remains stuck during ascent, the spring assembly will be compressed or extended. As a result, the trip cam (1) is pressed up or down and triggers the limit switch.

Sequence of steps

– Position the limit switch (S59/S60) as close as possible to the centre of the cam (1).

  Note: The sensitivity of the cut-out system can be varied via the distance between the limit switches and the actuating cam.

5.4.5 Double tooth of the take-off roller

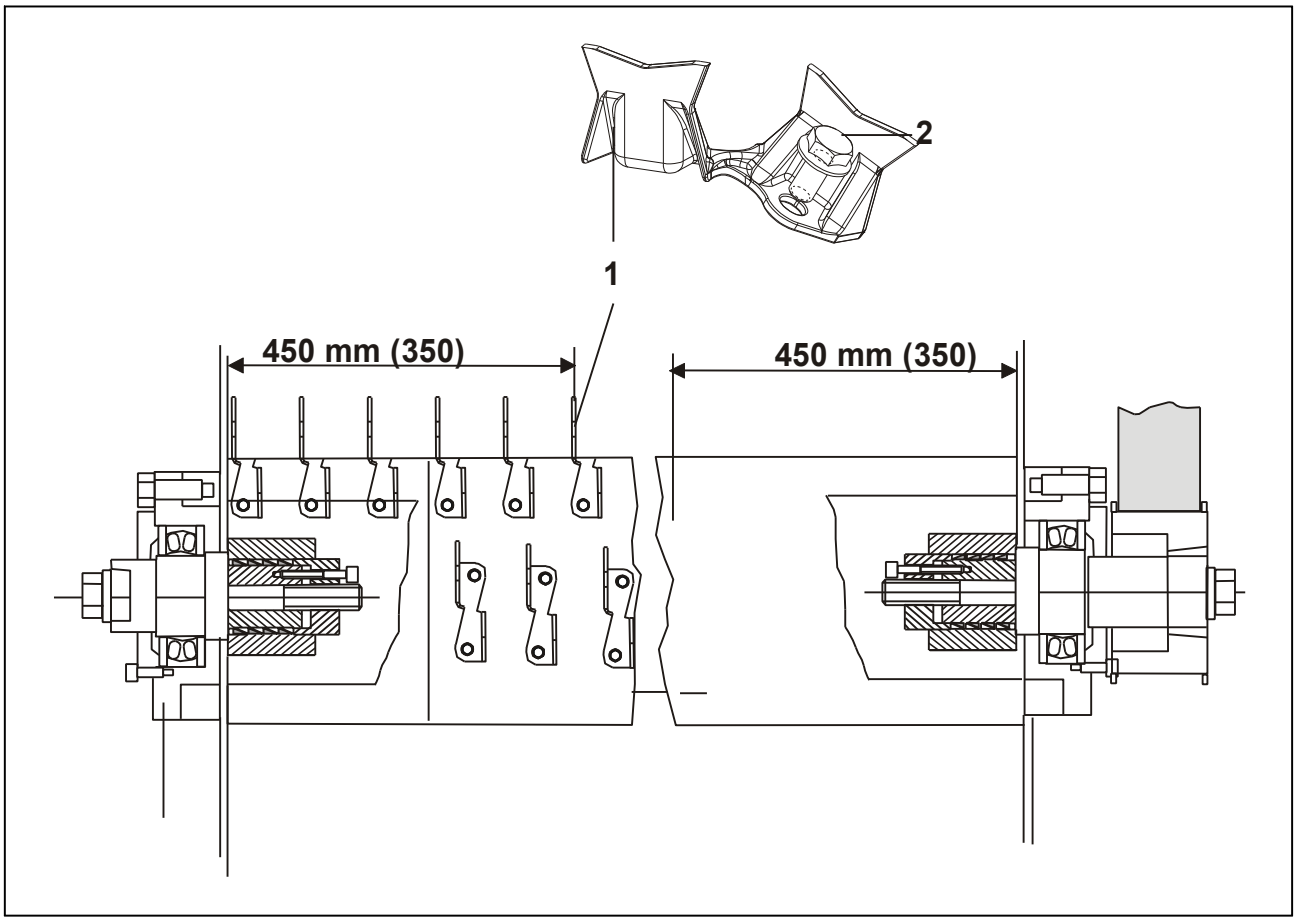
5.4.5.1 Replace double tooth

Replacing parts, Page 3/8
Remove double tooth, Page 6/34
Install double tooth, Page 6/35

5.4.5.2 Remove double tooth

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

Sequence of steps



– The balancing levels are located on both sides, 450 mm from the outside (short take-off unit 350 mm). In these double-tooth parts the balancing weights can be under the screw (2).

  Note: If this type of balancing weights are present, it is imperative that they be re-installed in the same location.

5.4.5.3 Install double tooth

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

Sequence of steps

– The original screws (2) must be used without fail. Install any balancing weights in the same position again.

Screw connection

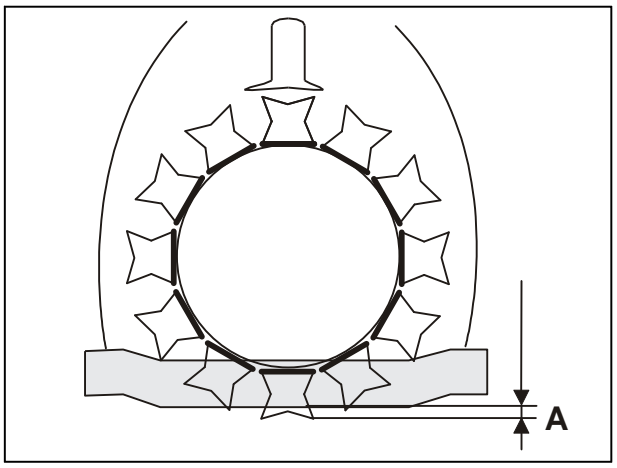
Double tooth

Thread dimension	8 mm
torque	34 Nm

– Set the penetration factor for the take-off roller.

☞ Setting the rate of protrusion for the take-off roller, Page 6/36

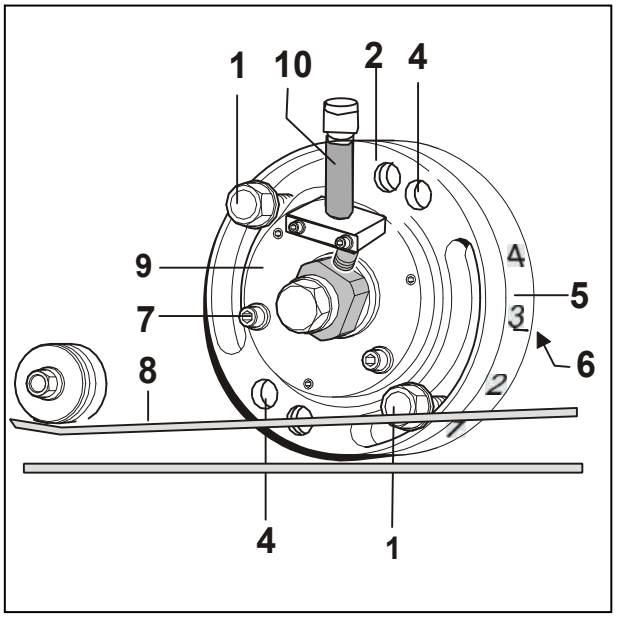
5.4.5.4 Setting the rate of protrusion for the take-off roller



We refer to protrusion as the rate (A) by which the tips of the teeth of the take-off roller protrude or stick out through the grid.

Setting aim: The rate of protrusion affects the tuft size. High rate of protrusion --> large tufts, high production, suitable for hard bales. Low rate of protrusion --> small tufts, lower production, suitable for loose bales.

Sequence of steps



WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

– Open the cover at the front and remove the cover at the rear left-hand side of the take-off unit.

– Undo the toothed belt.
☞ Changing the speed of the take-off roller, Page 6/32

– Undo the bolts (1) on both sides of the take-off roller bearing.

– Twist the eccentric bushes (2) at the front and rear, until the required number (in millimetres) is set at the mark (6) on the scale (5).

Note: For minimum and maximum adjustment, unscrew the screws (1) and screw them into the (4) holes.

Rate of protrusion of the take-off rollers	2 mm (min. 0, max. 8)

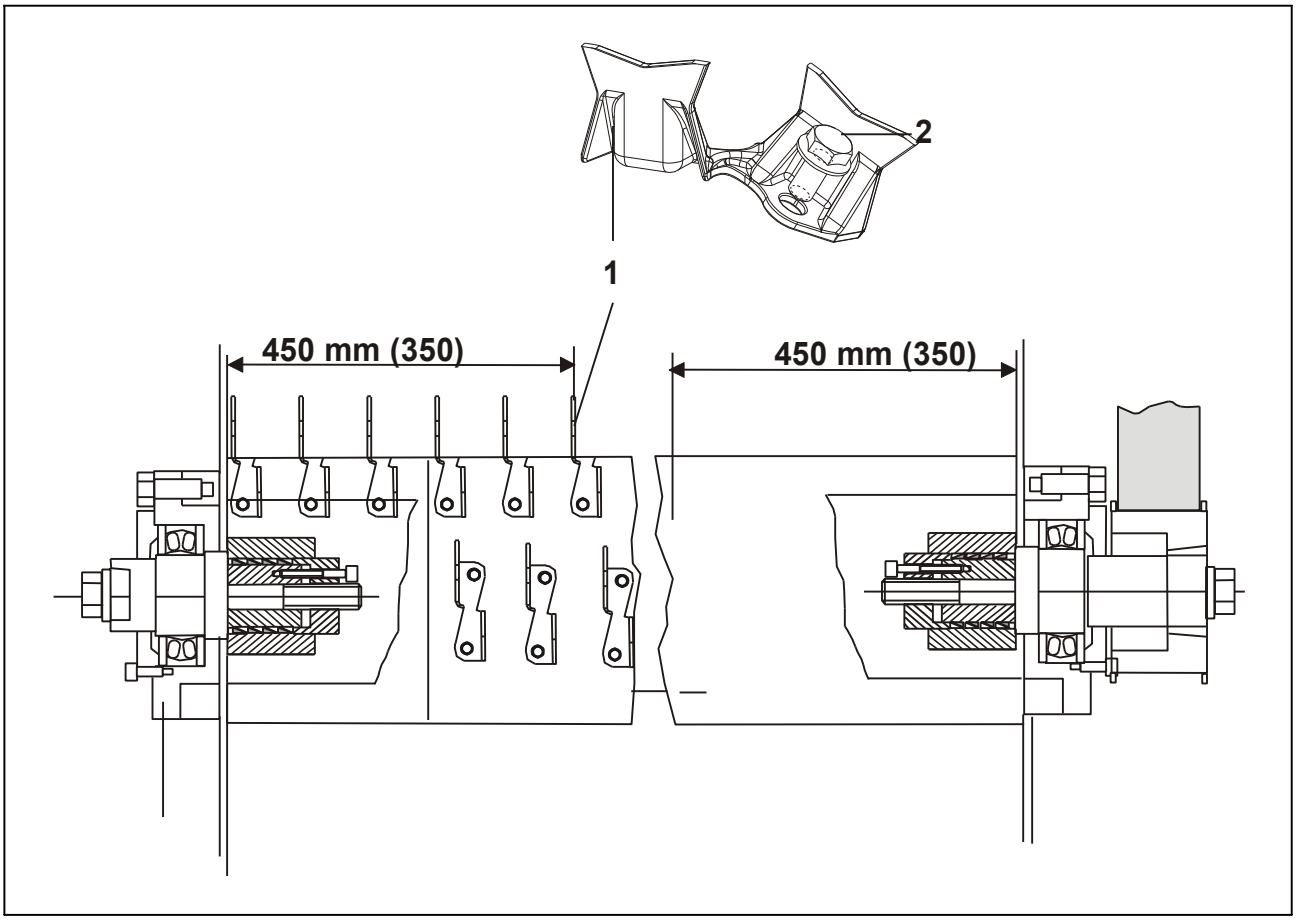
– Tighten the screws (1)

– Tighten the toothed belt.

Precautionary measures to be taken if the flat belt (8) is making contact with the proximity switch (10)

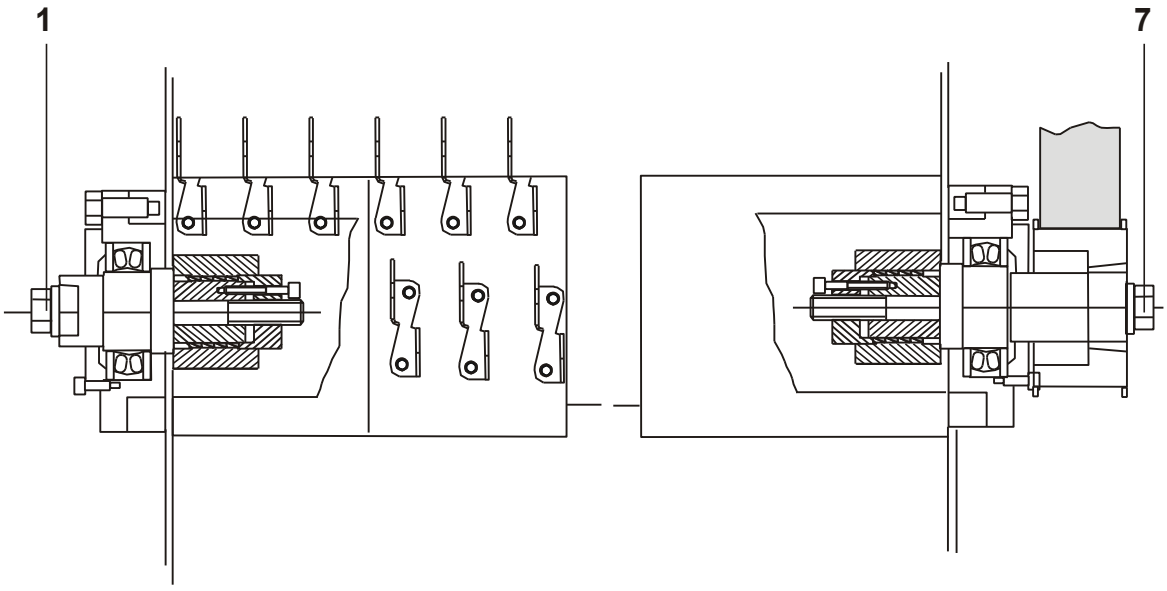
– Unscrew the bolts (7) and rotate the bearing cover (9) through 60°.

5.4.5.5 Overview of screw connections



Location number	Location / tools	Thread dimension	torque	Order of tightening
2	Double tooth	8 mm	34 Nm	

5.4.6 Overview of screw connections

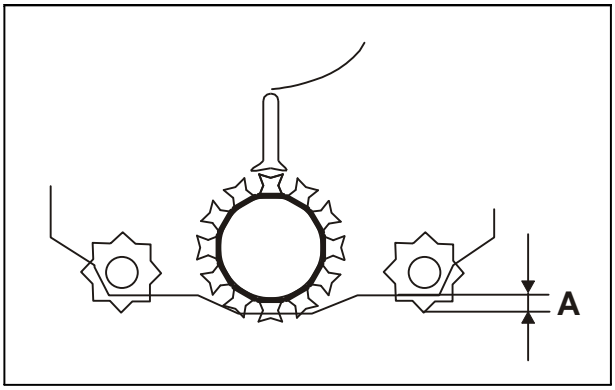


Location number	Location / tools	Thread dimension	torque	Order of tightening
1 and 7	Take-off unit	M 16	120 Nm	

5.5 Retaining rollers

5.5.1 Setting the rate of protrusion for the retaining rollers

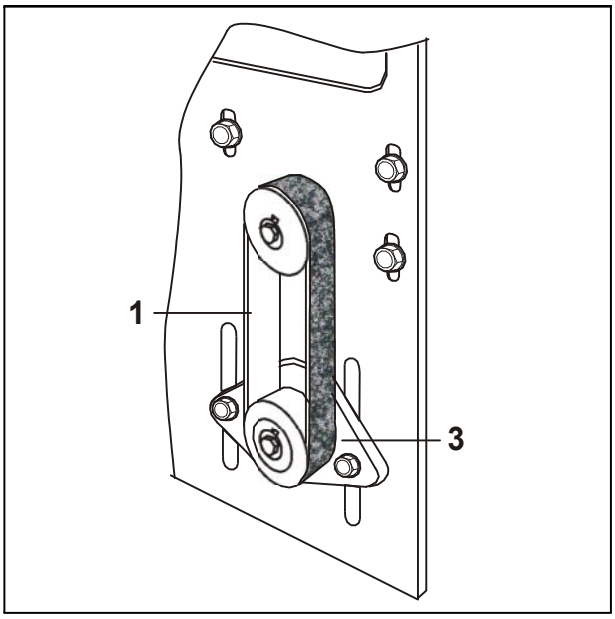
Adjusting machine to take in new raw material, Page 3/5



We refer to protrusion as the rate (A) by which the tips of the teeth of the retaining roller protrude or stick out through the grid.

Setting aim: High rate of contact --> suitable for loose bales. Low rate of contact --> suitable for hard bales. If the contact of the take-off roll is extremely high, the contact of the restraining rolls must also be increased.

Sequence of steps



WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

– Open all covers on the take-off unit.

– With flat belt (1) slackened, adjust flange bearing (3) by the desired amount.

  Note: The flange bearings (3) have to be adjusted by the same rate on the left and right and front and rear of the take-off unit.

– Tighten all flat belts (1) moderately.

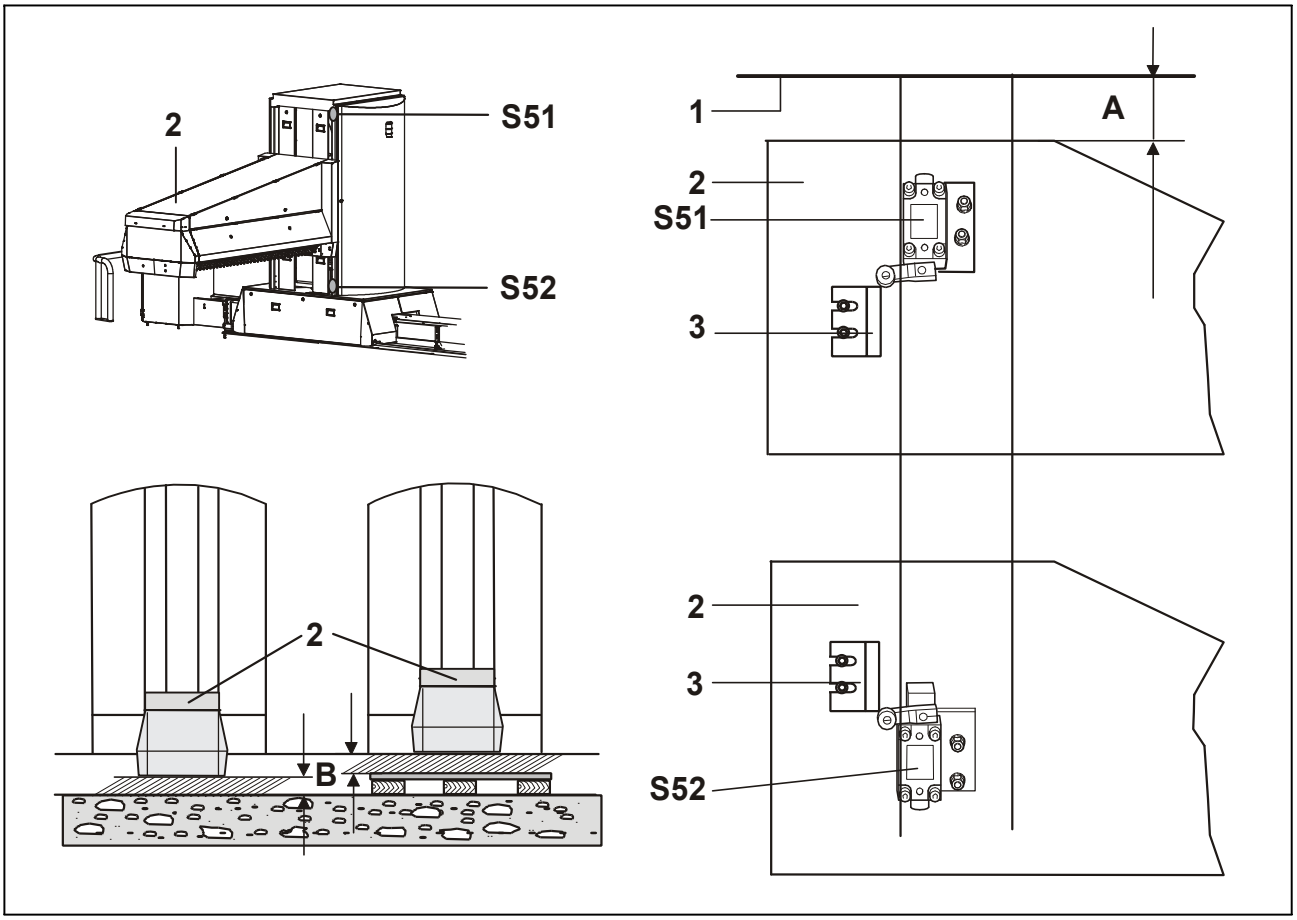
6 Swiveling turret

6.1 Frame of turret

6.1.1 Upper and lower stroke limits

6.1.1.1 Adjusting the upper and lower lift limit

Overview of limit switches, Page 3/9



The top and bottom positions of the take-off unit are limited by the two limit switches (S51) and (S52).

Setting the switch point for the top

– Move up the take-off unit.

Note: The clearance (A) from the top edge of the rotating tower (1) to the take-off unit (2) must have the following values.

Clearance between the upper edge of the rotating tower and the take-off unit	60 - 70 mm

– If needed, you can adjust the height of the limit switch (S51).

Note: When doing so, the holder (3) has to be aligned with the limit switch roller.

Setting the switch point for the bottom

– Select the bottom switch point as low as possible. The unevenness of the ground needs to be taken into account when doing so.

– Move the take-off unit (2) downwards.

Note: The clearance (B) between the ground or the pallet respectively and the take-off unit (2) must indicate the following values.

Clearance between the ground and the take-off unit	15 - 20 mm

– If needed, you can adjust the height of the limit switch (S52).

Note: When doing so, do not move the holder (3).

– The limit switches always have to be fixated via two bolts.

6.2 Drive of swiveling turret

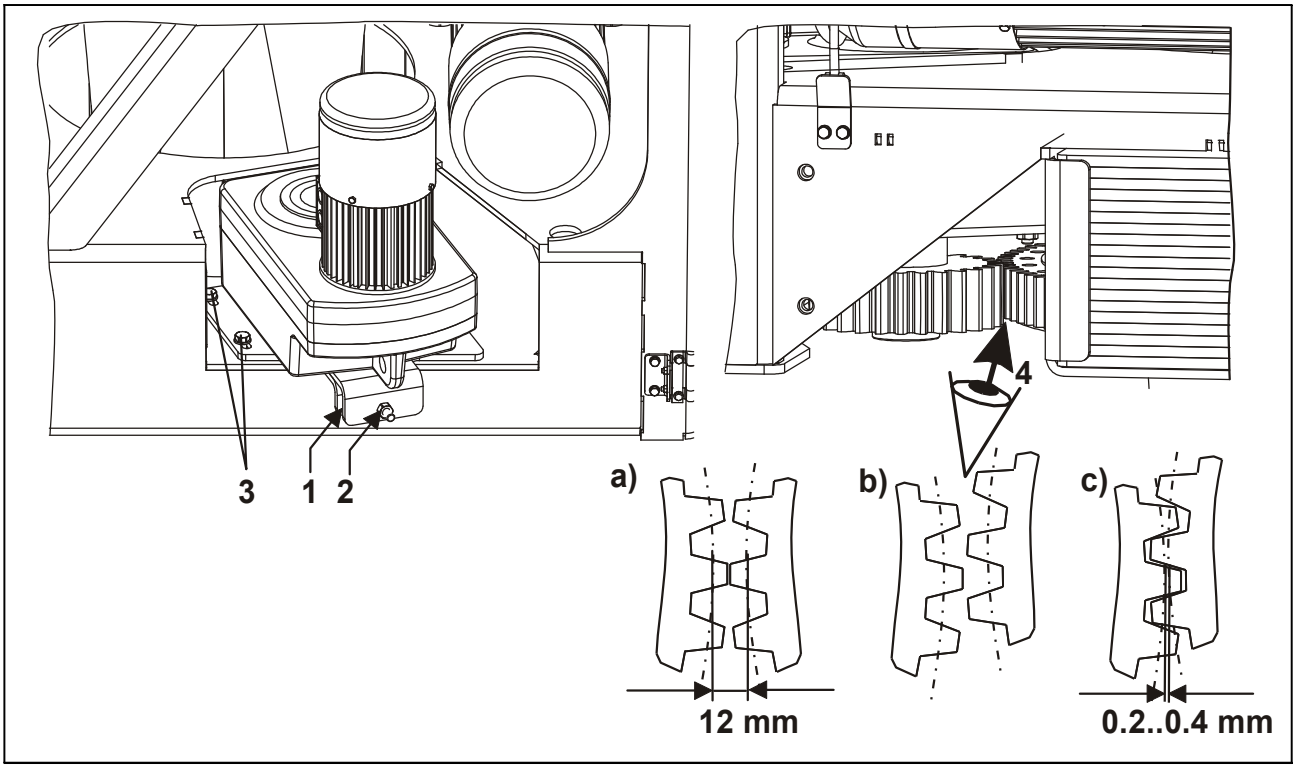
6.2.1 Rotary drive of turret

6.2.1.1 Setting the tooth play of the turning drive

Mechanical settings, Page 3/7

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

Sequence of steps



– Loosen the bolts (3).

– Displace the motor and turn the rotating tower in such a way that at (4) two teeth point directly towards one another(a) . The turn the rotating tower slightly until the teeth mesh together(b).

– Loosen the rear nut (1).

– Adjust the nut (2) by hand.

– Position the ring spanner vertically and then screw in by exactly 12 mm (9 ¾ rotations). Next tighten the rear nut (1).

– Finally tighten the bolts (3).

– Carefully move the rotating tower back and forth by hand. A slight clearance between the gears (c) must be noticeable.
Note: If there is no clearance between the gears, there will be an increase in wear.

Clearance between the gears (c)	0.20 - 0.40 mm

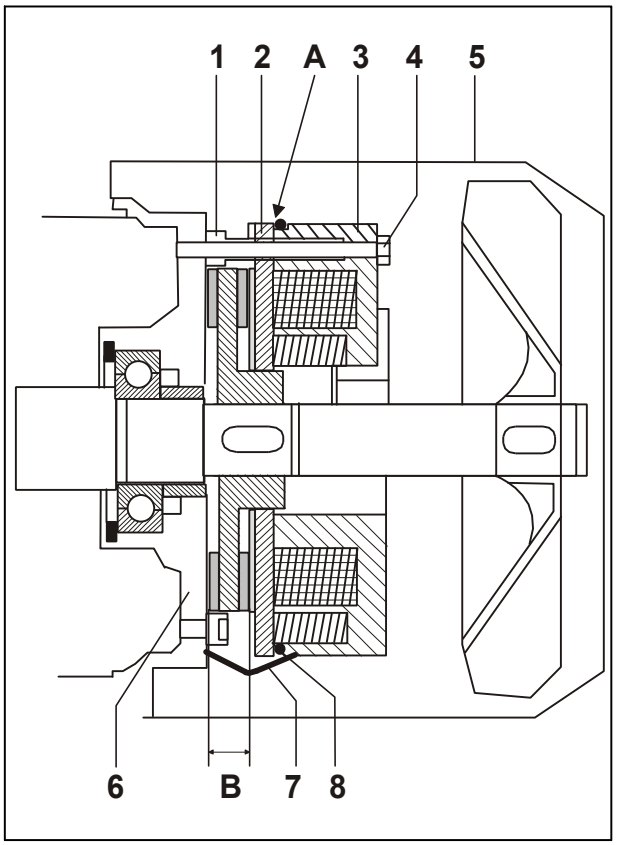
6.2.2 Brakes for turret rotation

6.2.2.1 Adjust the brake of the turret drive

Mechanical settings, Page 3/7

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

Description Lift drive brakes, Page 6/49



If the braking distance is too long, the gap (A) for the brake has to be adjusted.

Sequence of steps

– Remove the fan hood (5).

– Remove the dust protection ring (7).

– Remove abrasive dust using compressed air.

– Loosen the hexagonal bolts (4) by half a turn.
Note: After every second retightening at the latest you are to replace the hexagon bolts (4) with new bolts.

– Screw the banjo bolts (1) approx. 1 mm into the magnetic body (3).

– Measure the dimension (B) of the brake disc.

Dimension (B) of the brake disc	min. 9.5 mm

– Tighten the hexagonal bolts (4), until the gap (A) is attained.
Note: Use the feeler gauge to measure the gap (A).

Gap «A»	0.3 mm (min. 0.3, max. 0.6)

– Unscrew the banjo bolts (1) from the magnetic body (3) until they rest against the bearing plate (6).

– Check the air gap (A) again. Check at several spots.

– Tighten the hexagonal bolts (4) firmly using the specified torque

Torque for the bolt (4)	10 Nm

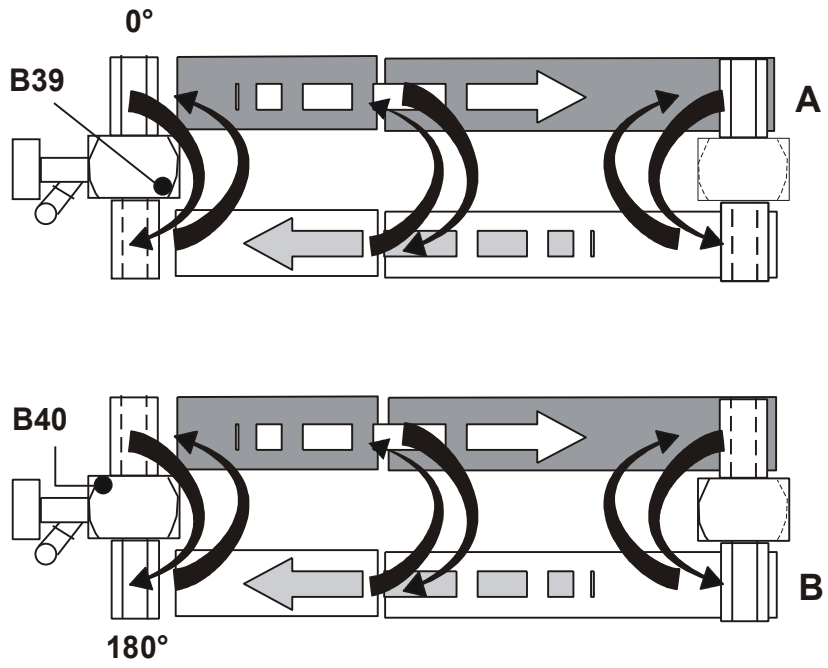
– Insert the O-ring (8) into the groove between the anchor plate (2) and the magnetic body (3).

– Fit the dust protection ring (6).

6.2.3 Sensors for rotary motion of the turret

6.2.3.1 Description

Purpose: Positioning of the rotating tower.

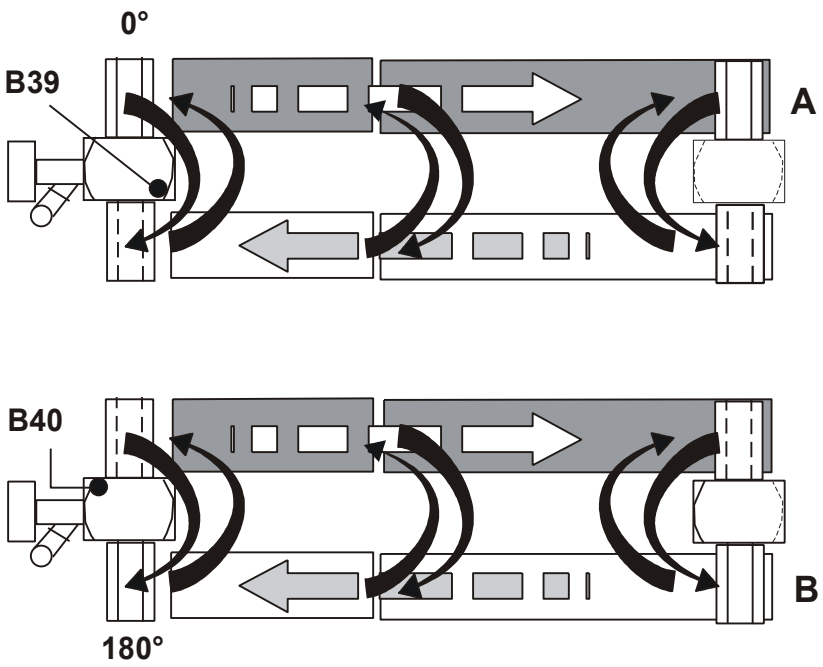


The rotating tower must never be rotated more than (180°) by the control unit.

The rotating tower can be turned with all position sliders (dependent on setting). The proximity switch (B39) detects the 0° position and the proximity switch (B40) the 180° position

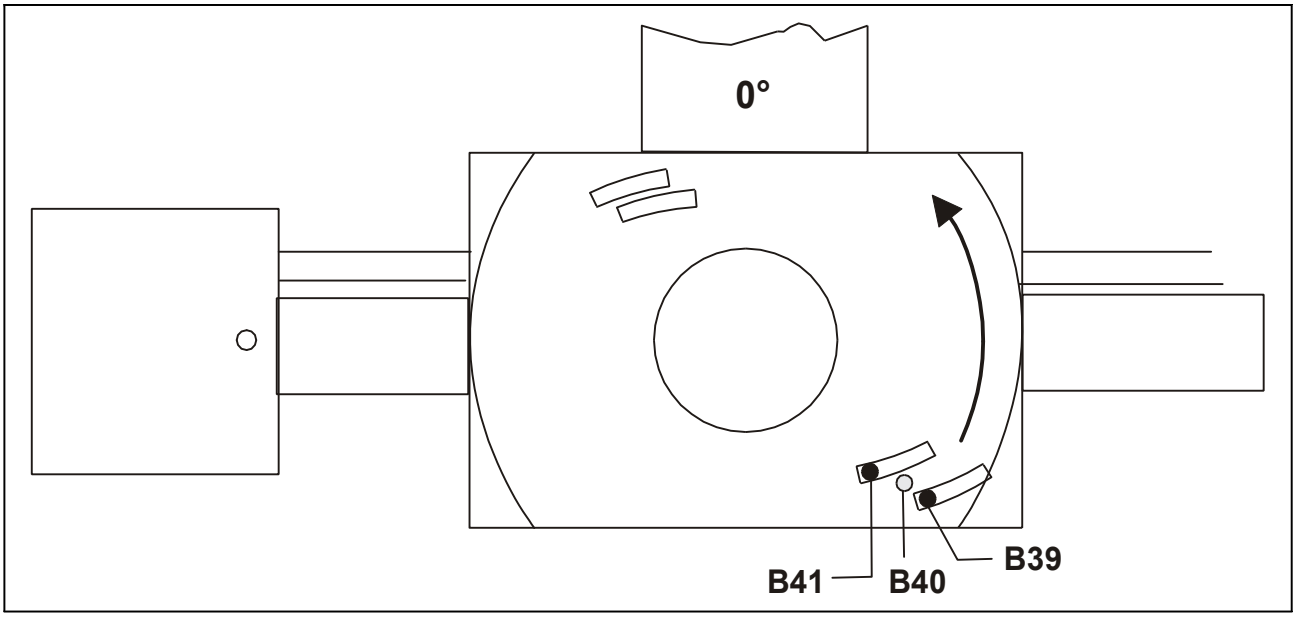
At the 0° position, the take-off unit is located on the left-hand side of the machine (A).

At the 180° position, the take-off unit is located on the right-hand side of the machine (B).

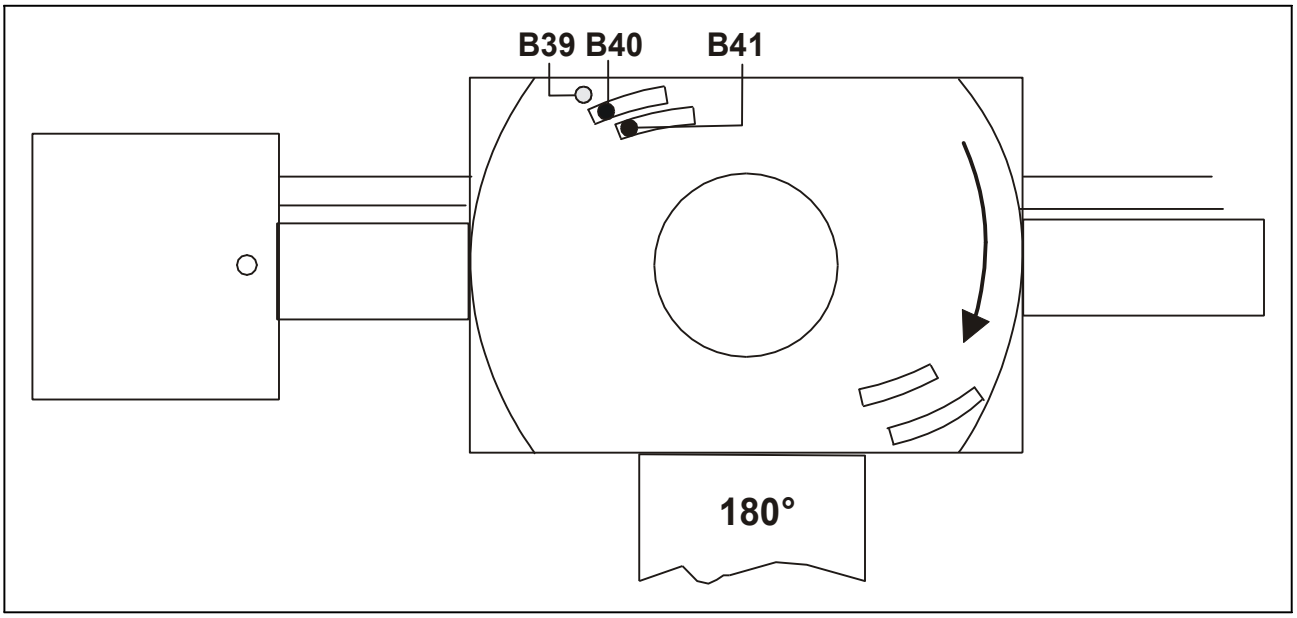


Method of operation

- The proximity switches (B39 /B40/B41) are needed for the monitoring of the rotating tower motion and the positioning of the rotating tower.
- The proximity switch (B39) detects the 0° position and the proximity switch (B40) the 180° position
- During rotation of the rotating tower, the speed of the tower is switched to fast or slow via the signal issued by the proximity switch (B41).
- The signal transmitters have to be set in such a way that the rotating tower is stationary precisely at the 0° and 180° positions. Before these positions are reached, the proximity switch (B41) has to switch the rotating tower motion to slow speed. For this purpose, the corresponding signal transmitter has to be set in a likewise manner.
- The rotating tower can be turned with all position sliders (dependent on setting). The proximity switch (B39) detects the 0° position and the proximity switch (B40) the 180° position



Condition: Statuses of the proximity switches at the (0°) position on side (A).
The proximity switches (B39) (0° position) and (B41) (signal for slow / fast rotation) are active.



Condition: Statuses of the proximity switches at the (180°) position on side (B).
The proximity switches (B40) (180° position) and (B41) (signal for slow / fast rotation) are active.

6.2.3.2 Setting proximity switches for the positioning of the rotating tower

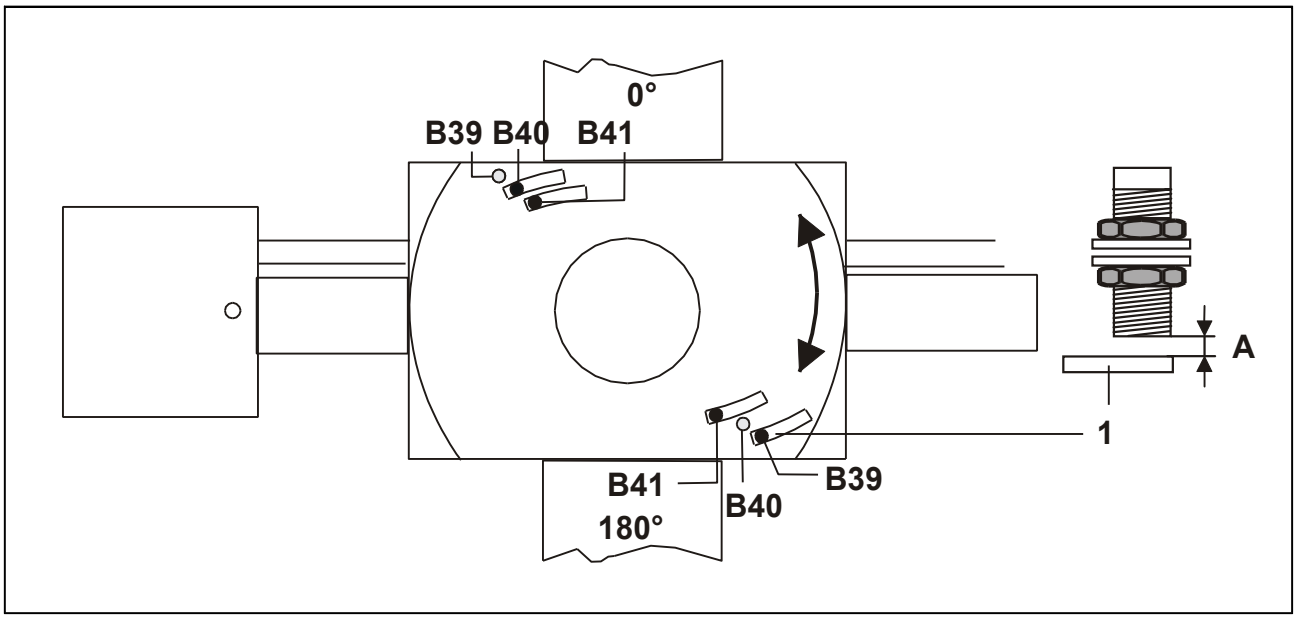
Overview of the proximity switches, Page 3/10

Description Sensors for rotary motion of the turret, Page 6/45

The proximity switches (B39 /B40/B41) are needed for the monitoring of the rotating tower motion and the positioning of the rotating tower. The signal transmitters (1) have to be set in such a way that the rotating tower is stationary precisely at the 0° or 180° position. Before these positions are reached, the proximity switch (B41) has to switch the rotating tower motion to slow speed. For this purpose, the corresponding signal transmitter has to be set in a likewise manner.

Setting aim: The signal transmitters (1) have to be set in such a way that the rotating tower is stationary precisely at the 0° and 180° positions. Before these positions are reached, the proximity switch (B41) has to switch the rotating tower motion to slow speed. For this purpose, the corresponding signal transmitter has to be set in a likewise manner.

Sequence of steps



– The proximity switches have to set according to the distance (A) to the signal transmitters (1).

Specification "A" for monitoring the rotating tower	4.0 mm (min. 3.5, max. 4.5)

– Set the signal transmitters (1) for the proximity switch (B41) in such a way that the rotating tower moves slowly to the 0° or 180° position.

– Set the signal transmitters (1) for the proximity switches (B39/B40) in such a way that the rotating tower is stationary precisely at the 0° and 180° positions.

  Note: The rotating tower is parallel to the drive frame.

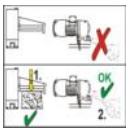
– Check the dimension (A) at all positions.

  Note: Compensate for any discrepancies. The dimension must lie within the stated tolerance range.

6.3 Lift drive

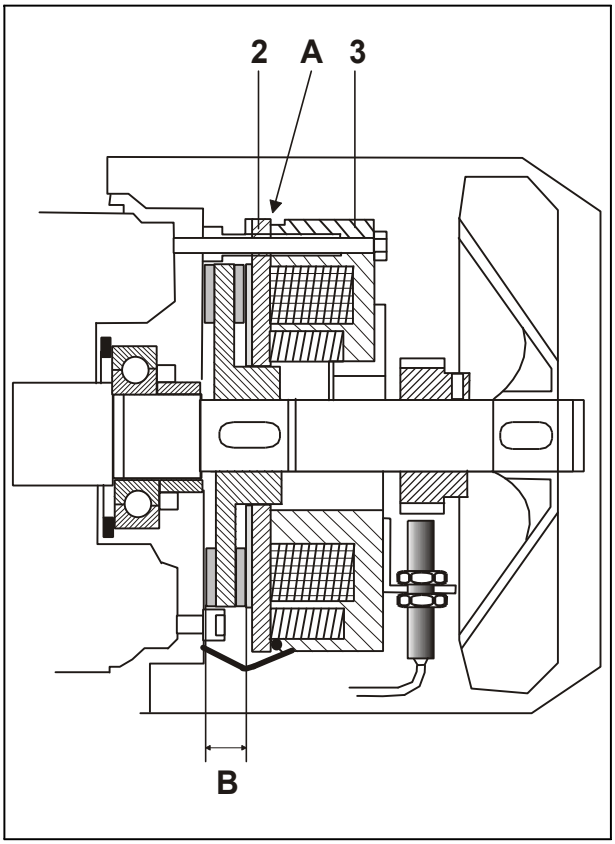
6.3.1 Lift drive brakes

6.3.1.1 Description



DANGER
Any lift chain work must not be completed unless the take-off unit is supported/braced by the bales.

Structure



Measure the working gap (A) in brake position between the anchor plate (2) and the magnet (3).

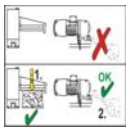
If the brake lining has been worn down so far that the maximum gap tolerance (A) is reached, you will have to readjust the brakes.

The dimension (B) of the brake disc must not drop below 9.5 mm.

6.3.1.2 Adjust the brake of the lift drive

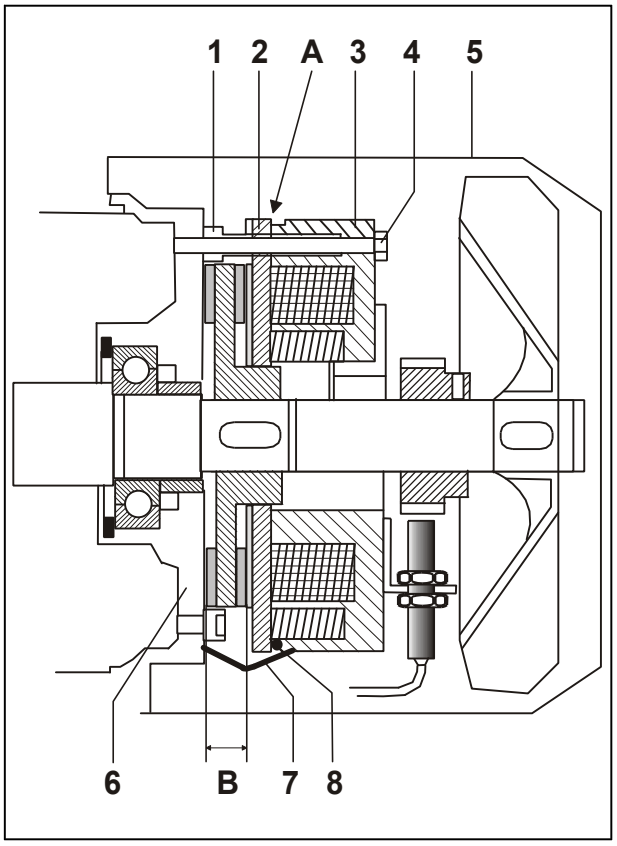
Mechanical settings, Page 3/7

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.



DANGER
Any lift chain work must not be completed unless the take-off unit is supported/braced by the bales.

Description Lift drive brakes, Page 6/49



If the braking distance is too long, the gap (A) for the brake has to be adjusted.

Sequence of steps

– Remove the fan hood (5).

– Remove the dust protection ring (7).

– Remove abrasive dust using compressed air.

– Loosen the hexagonal bolts (4) by half a turn.
Note: After every second retightening at the latest you are to replace the hexagon bolts (4) with new bolts.

– Screw the banjo bolts (1) approx. 1 mm into the magnetic body (3).

– Measure the dimension (B) of the brake disc.

Dimension (B) of the brake disc	min. 9.5 mm

– Tighten the hexagonal bolts (4), until the gap (A) is attained.
Note: Use the feeler gauge to measure the gap (A).

Gap «A»	0.4 mm (min. 0.4, max. 0.7)

– Unscrew the banjo bolts (1) from the magnetic body until they rest against the bearing plate (6).

– Check the air gap (A) again. Check at several positions.

– Tighten the hexagonal bolt (4) firmly using the specified torque

Torque for the bolt (4)	10 Nm

– Insert the O-ring (8) into the groove between the anchor plate (2) and the magnetic body (3).

– Fit the dust protection ring (6).

6.3.2 Lift chain

6.3.2.1 Replacing lift chains

☞ Removing lift chains, Page 6/52
☞ Installing lift chains, Page 6/54

Note: The drive and lift chains must be replaced by chains of an identical quality in accordance with the specified maintenance schedule.

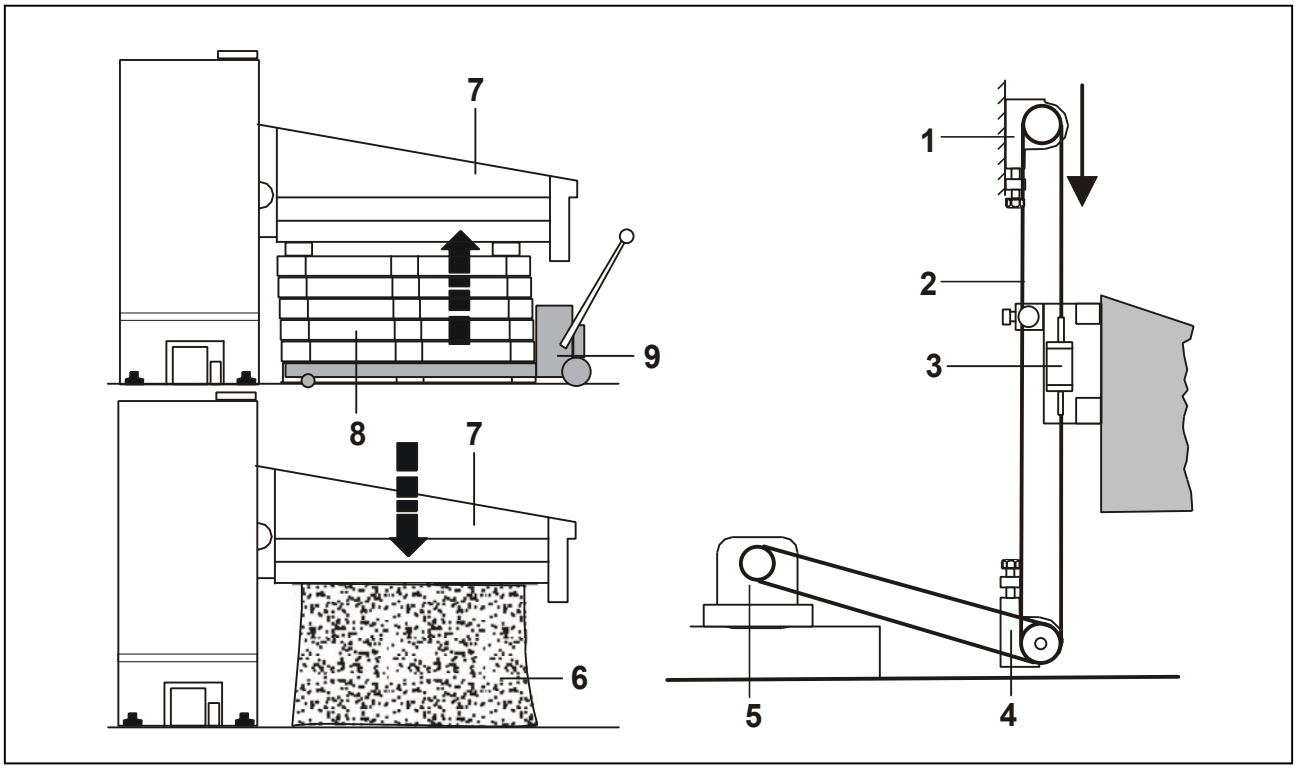
6.3.2.2 Removing lift chains

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.
Lift chain tasks must not be performed, unless the take-off unit is supported by a base, such as bales or pallets.

Removal in the event of the chain being broken

Note: The take-off unit may no longer be raised or lowered.

Sequence of steps



– Remove the bales (6) beneath the take-off unit (7) or, if possible, move the machine to a position without bales.

– Fill as much of the space beneath the take-off unit (7) as possible with pallets (8).

– Loosen the drop protection device (3) and remove, provided that it has not jammed.
☞ Releasing or removing the drop protection device for the brake, Page 6/59

– Use the trolley jack (9) to lift the pallets (8).
Note: The take-off unit must be as horizontal as possible while it is being raised. If necessary, align the unit horizontally using wooden beams.

– Release the brakes for the lift drive (5) in steps and lower the trolley jack (9).
Note: Release the brake via data screen 82.3.

– Loosen the bolts of the bearing fixture (1) and slacken the chains (3)
Note: Do not slacken the chains (2) at the bearing fixture (4)

– Remove the chains (2).
  Note: Always remove and replace both chains.

Replace chains after 16,000 operating hours

Sequence of steps

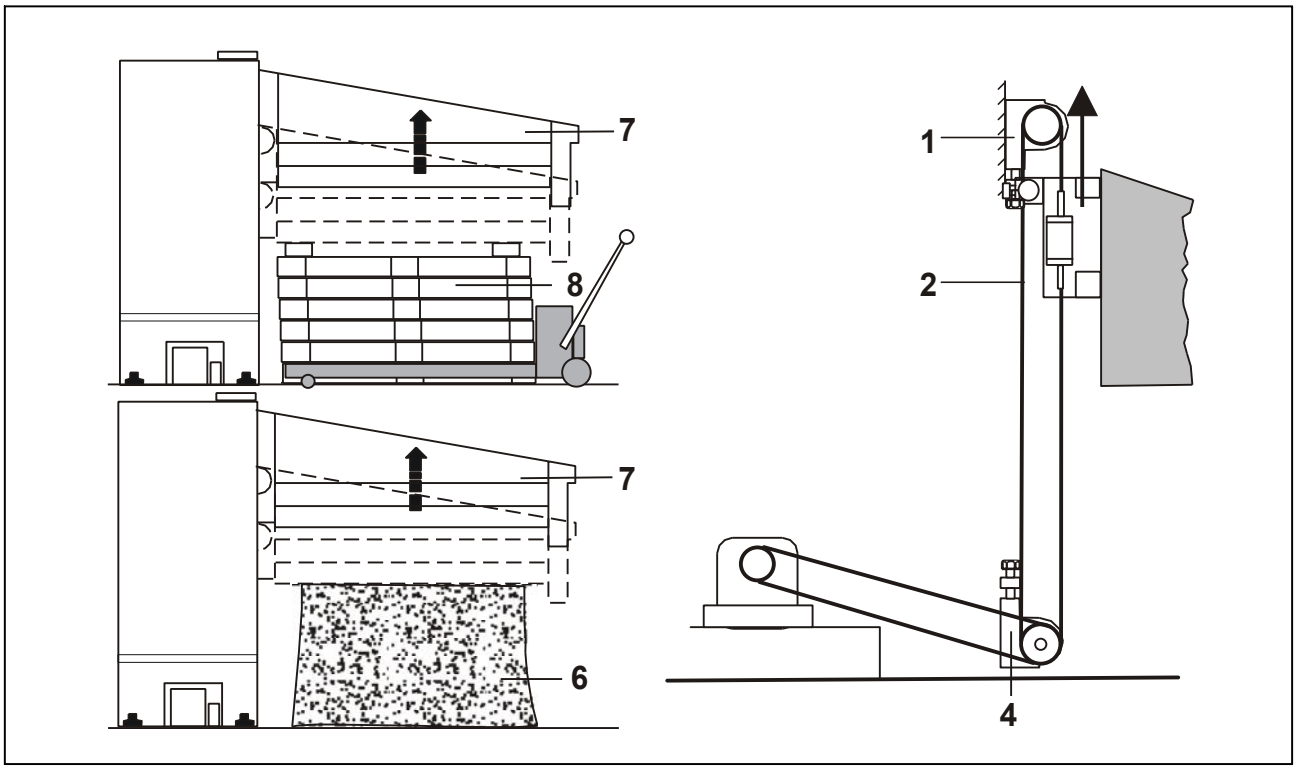
– Remove the bales (6) beneath the take-off unit (7) or, if possible, move the machine to a position without bales.
– Fill as much of the space beneath the take-off unit (7) as possible with pallets (8).
– Use the trolley jack (9) to lift the pallets (8).
– Loosen the drop protection device (3) and remove, provided that it has not jammed.
  ☞ Releasing or removing the drop protection device for the brake, Page 6/59
– Release the brakes for the lift drive (5) in steps and lower the trolley jack (9).
  Note: Release the brake via data screen 82.3.
– Loosen the bolts of the bearing fixture (1) and slacken the chains (3)
  Note: Do not slacken the chains (2) at the bearing fixture (4)
– Remove the chains (2).
  Note: Always remove and replace both chains.

6.3.2.3 Installing lift chains

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.
Lift chain tasks must not be performed, unless the take-off unit is supported by a base, such as bales or pallets.

Note: Always replace both chains.

Sequence of steps



– Install both chains (2).

– Use the bearing fixtures (1) to temporarily tighten the chains (2)
Note: Do not tighten at the bearing fixtures (4).
☞ Tightening the chains of the lift drive, Page 6/55

– Move the take-off unit (7) upwards slightly, so that it no longer rests on the bales (6) or the pallets (8).

– Check the horizontal alignment of the take-off unit (7) and correct if necessary.
☞ Horizontally align the take-off unit, Page 6/21

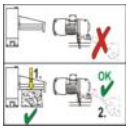
– Move the take-off unit (7) upwards as far as possible and tighten the chains according to the final setting.
☞ Tightening the chains of the lift drive, Page 6/55

– Check the horizontal alignment of the take-off unit (7) once again and correct if necessary.
☞ Horizontally align the take-off unit, Page 6/21

6.3.2.4 Tightening the chains of the lift drive

Mechanical settings, Page 3/7

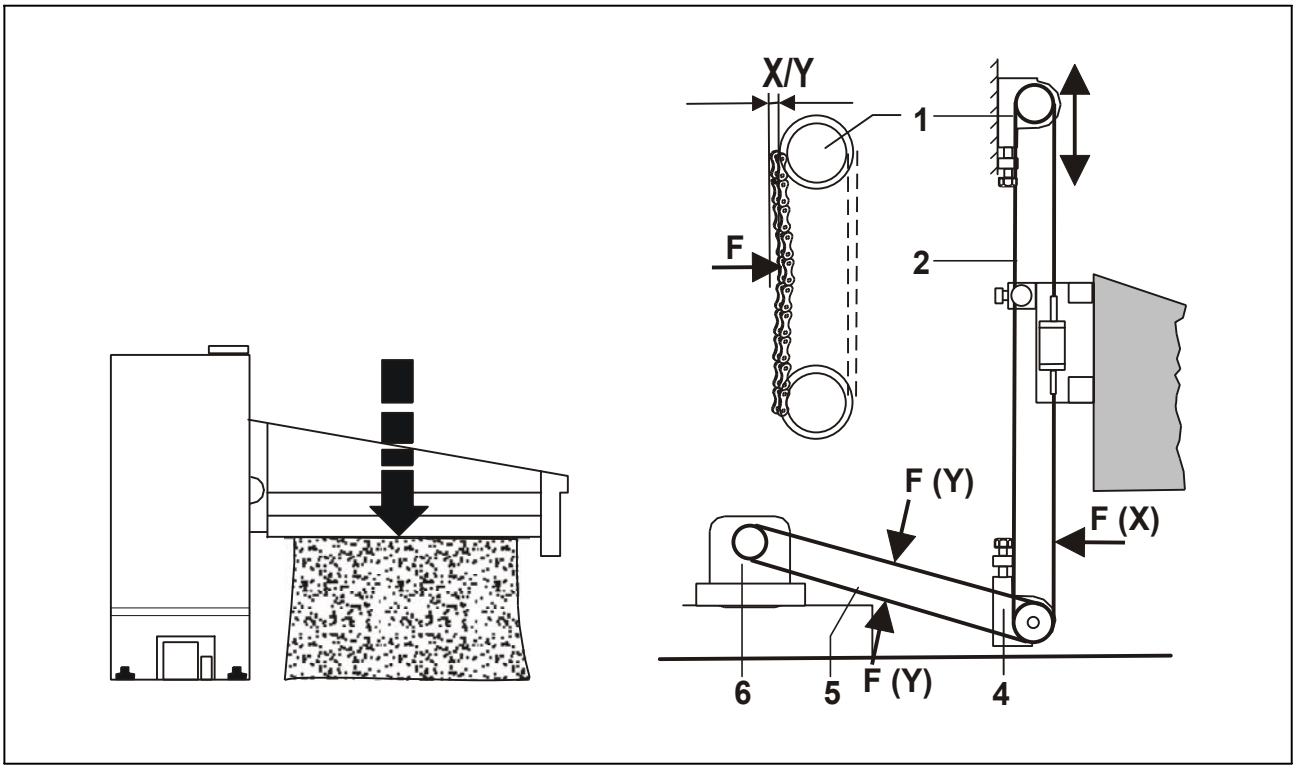
WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.
Tasks involving the chains of the lift drive must not be performed, unless the take-off unit is supported by a base, such as bales.



DANGER
Any lift chain work must not be completed unless the take-off unit is supported/braced by the bales.

Replace the drive and lift chains after 16,000 operating hours.
The bearing fixtures for the shaft (4) are factory-set and should not be subsequently adjusted.

Lift chain, dimension “X”



– **Prerequisite:** The lift chains (2) are tightened via the bearings (1).
Apply an inward force (F) to the slack span of the chain so that the dimension (X) is attained.
Note: The chains must not be stretched to a taut state.
Dimension “X”

Force “F”: 150 N	42.0 mm

Drive chain, dimension “Y”

– **Prerequisite:** In order to tighten the drive chain (5), the motor (6) has to first be displaced.
Apply an inward force (F) to the slack span of the chain so that the dimension (Y) is attained.
Note: The chains must not be stretched to a taut state.

Dimension “Y”

Force “F”: 150 N	22.0 mm

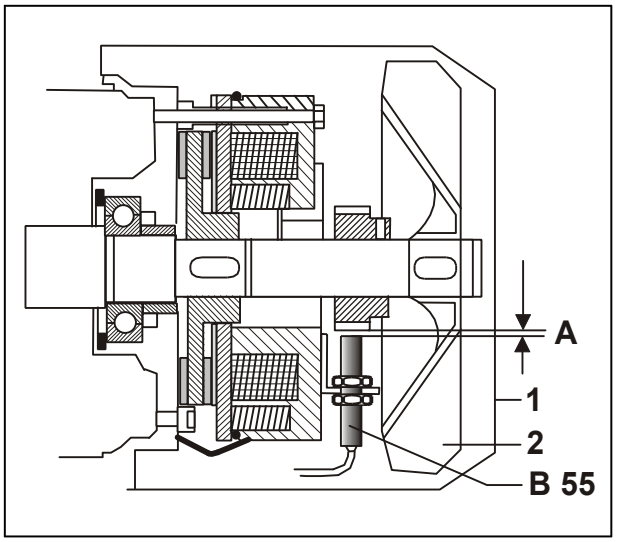
6.3.3 Lift measurement

6.3.3.1 Adjusting the lift count

Overview of the proximity switches, Page 3/10

The purpose of the proximity switch impulses (B55) is to position the take-off unit in terms of height.

Sequence of steps

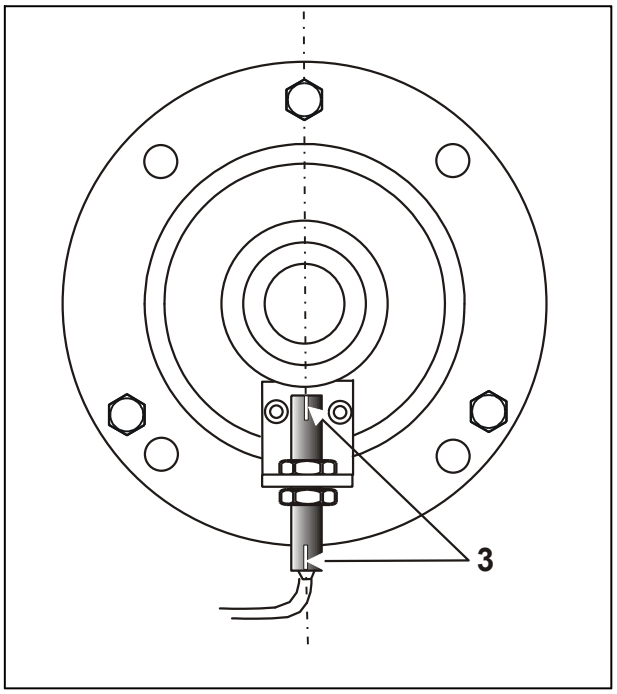


– Remove the fan hood (1) and the fan (2).

– Set the clearance (A) to the following specifications.

Distance "A"	0.3 mm (min. 0.2, max. 0.4)

Sequence of steps



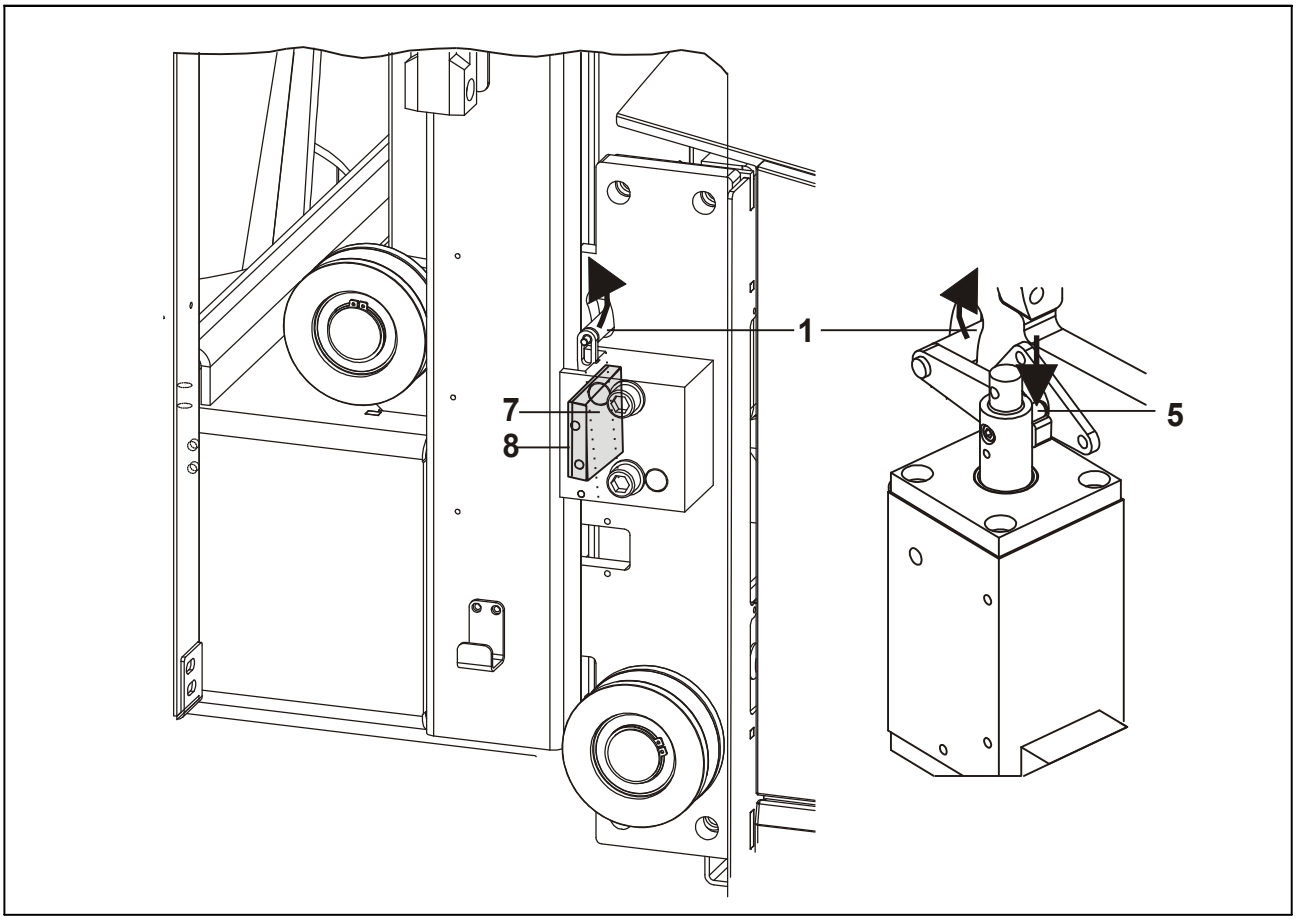
– Ensure that the notches (3) are pointing exactly towards the centre of the shaft.

– The notch must be on the outside as shown in the figure.

6.4 Anti-drop device on the take-off unit

6.4.1 Description

Structure



If a drive element of the take-off unit breaks, the pin (5) is forced downwards as a result of the spring unit contracting.

As a result, lever (1) swings up (see arrows)

Brake (7) is pulled up and brake lining (8) is pressed against the guide.

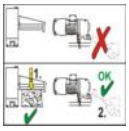
Purpose: The take-off unit is immediately stopped.

6.4.2 Damping and protective devices of the take-off unit's suspension

6.4.2.1 Replace anti-drop device brake block

Replacing parts, Page 3/8
Releasing or removing the drop protection device for the brake, Page 6/59
Install anti-drop device brake, Page 6/60

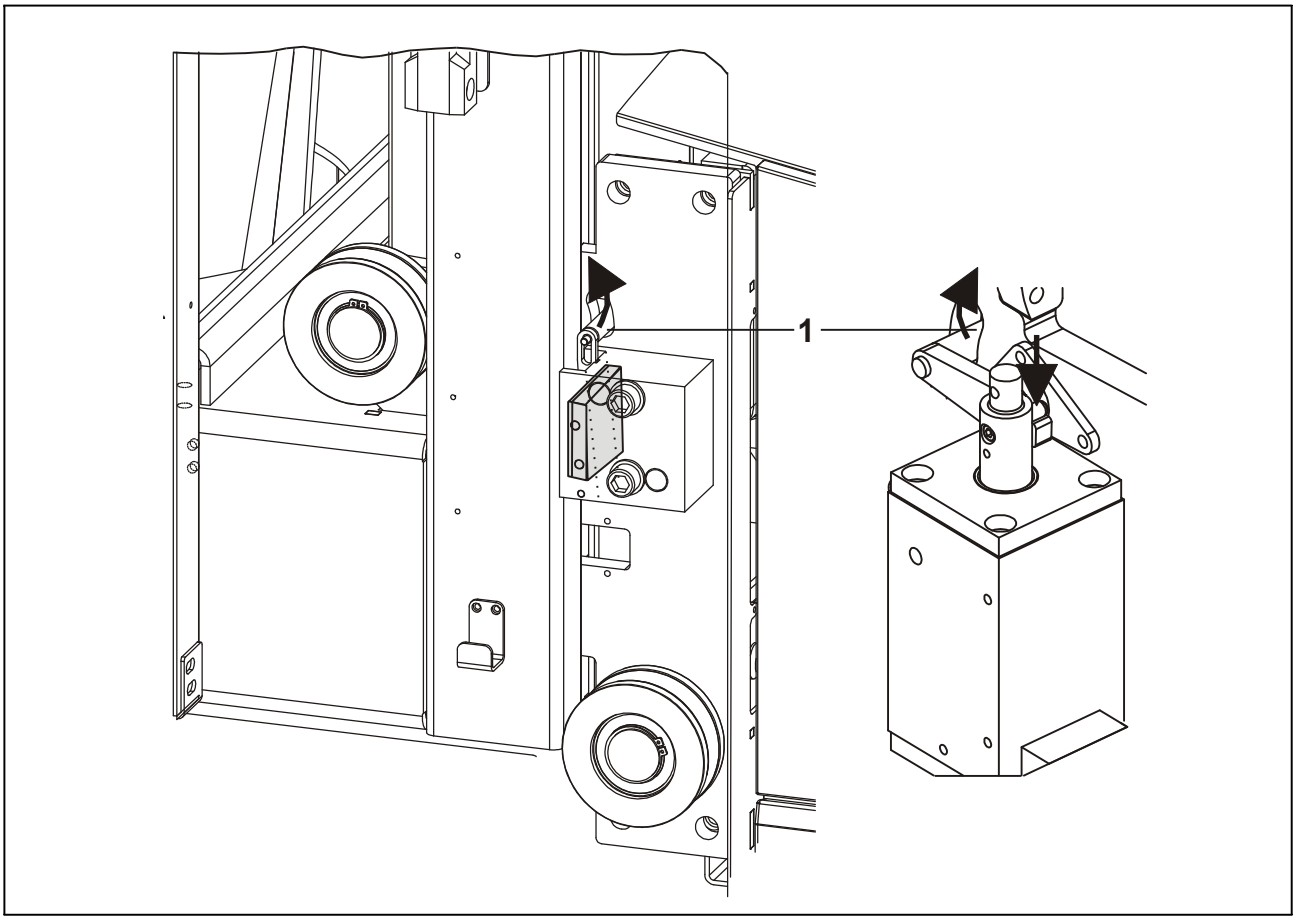
6.4.2.2 Releasing or removing the drop protection device for the brake



DANGER
Any lift chain work must not be completed unless the take-off unit is supported/braced by the bales.

☞ Description Anti-drop device on the take-off unit, Page 6/57

Sequence of steps



– **Prerequisite:** If the lever (1) can be moved freely, the pin (5) does not need to be removed.
If the anti-drop device is engaged, the bolt (6) has to be removed first of all.

– Drive out pin (5) to the rear using a drifter. This releases lever (1).

– Remove the nut (2).

– Remove the bolts (3).

– If the complete drop protection device is engaged, the bolts (3) can be forced out from the inside using the thread on the roller plate.

– Drive out pin (4) so that the spring can be unhooked. The brake wedge (7) can now be lifted out.
Note: If the same brake blocks (7) are to be used again, the brake lining (8) must be roughened and cleaned using sandpaper. If new brake blocks are to be installed, the two brake blocks (7) must always be replaced simultaneously. The guide profile (9) must be absolutely clean and free of oil and grease.

6.4.2.3 Install anti-drop device brake

Sequence of steps

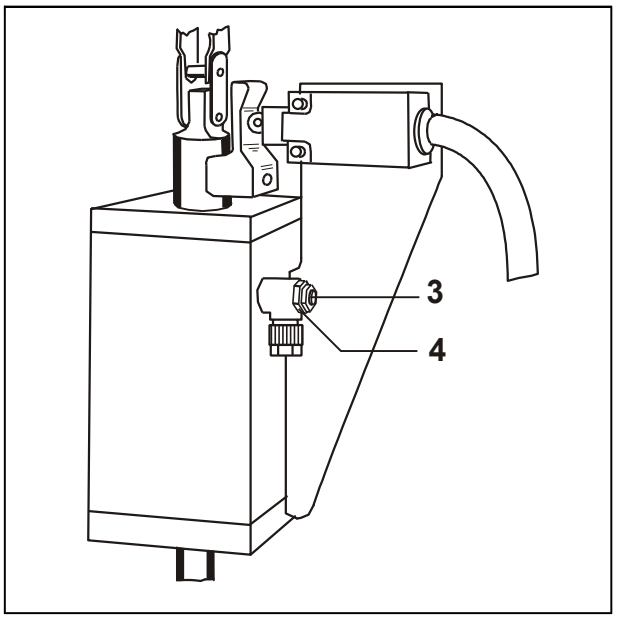
– Install the brake in the reverse sequence
  Note: The guide profile must be free of oil and grease.

6.4.2.4 Adjusting the damping of the take-off unit

Mechanical settings, Page 3/7

Use the throttle screw (3) to adjust the rocking of the take-off unit.

Sequence of steps



– Loosen nuts (4).
– Screw in the throttle screw (3) and then open by a maximum of 4 turns.
– Fix the throttle screw in place using the nut (4).

7 Chassis unit

7.1 Set drive speed

Adjusting machine to take in new raw material, Page 3/5

Setting aim: The ideal drive speed must be determined by trial and error.

Sequence of steps

– The drive speed can be set in the following data screen.
10.2, Page 2/53

– Higher drive speeds result in higher production, larger tufts and heavier demands on the drives.

– Lower drive speeds result in lower production, smaller tufts and less heavy demands on the drives.

Finishing

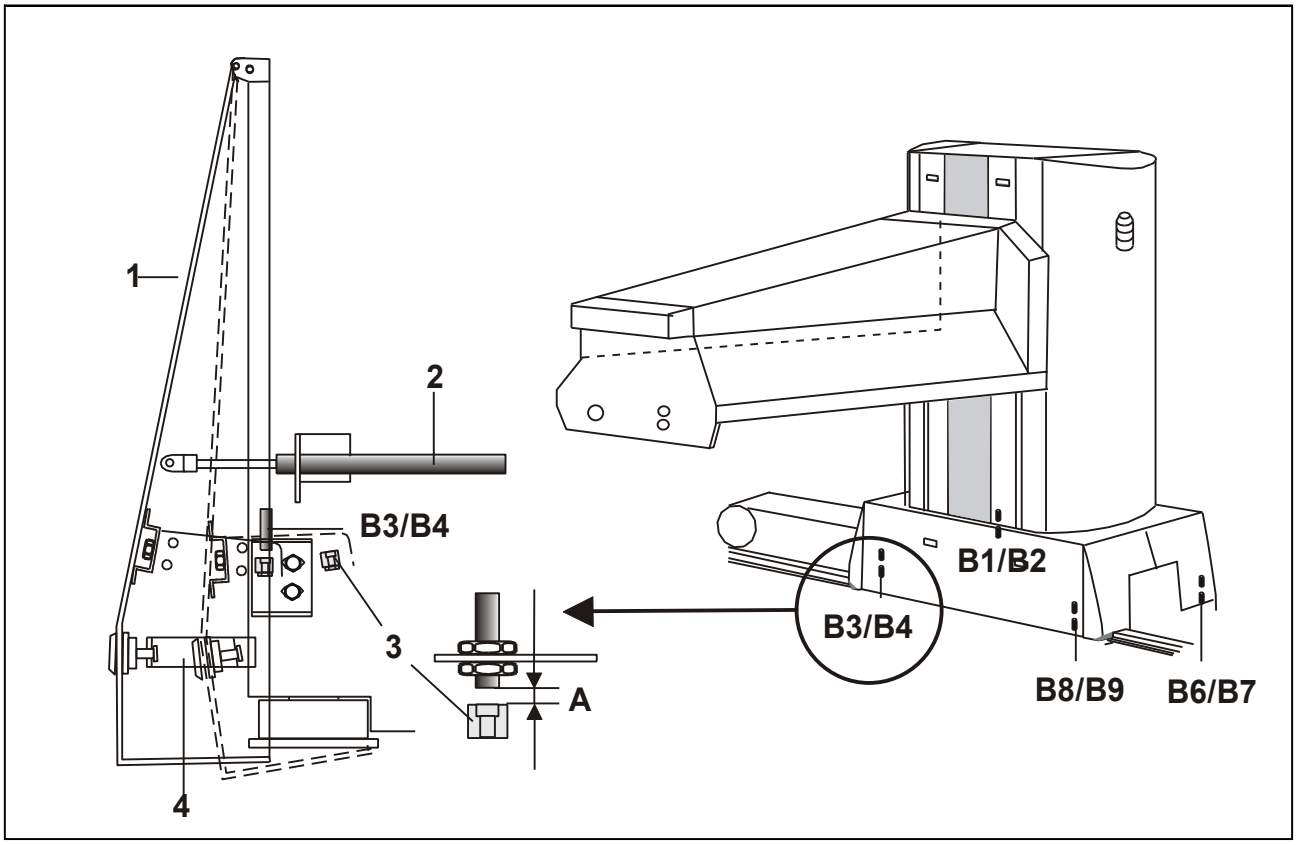
– After altering the drive speed, check the chain tension of the drive and adjust if necessary.
Tightening the drive chains, Page 6/66

7.2 Chassis

7.2.1 Collision safeguard of the chassis

7.2.1.1 Adjusting the collision safeguards on the chassis

Overview of the proximity switches, Page 3/10



The swivelling flaps (1) are forced outwards via gas pressure springs(2). The closing tongue (4) fixes the swivelling flap in a neutral position. If the drive frame encounters an obstacle, the swivelling flap will be pushed inwards.. The permanent magnets (3) will be swung away from the proximity switches. The proximity switch switches and the control unit deactivates all drives. If the cover (1) is open, the proximity switch is likewise swung away. Consequently, the machine cannot start.

Setting aim: The proximity switches have to be set correctly to ensure that the protective mechanism works properly.

Sequence of steps

– The dimension (A) is used to set the proximity switches:

Measure "A" for the collision safeguards	5 mm (min. 4.5, max. 5.5)

7.2.2 Zero position sensor of the chassis

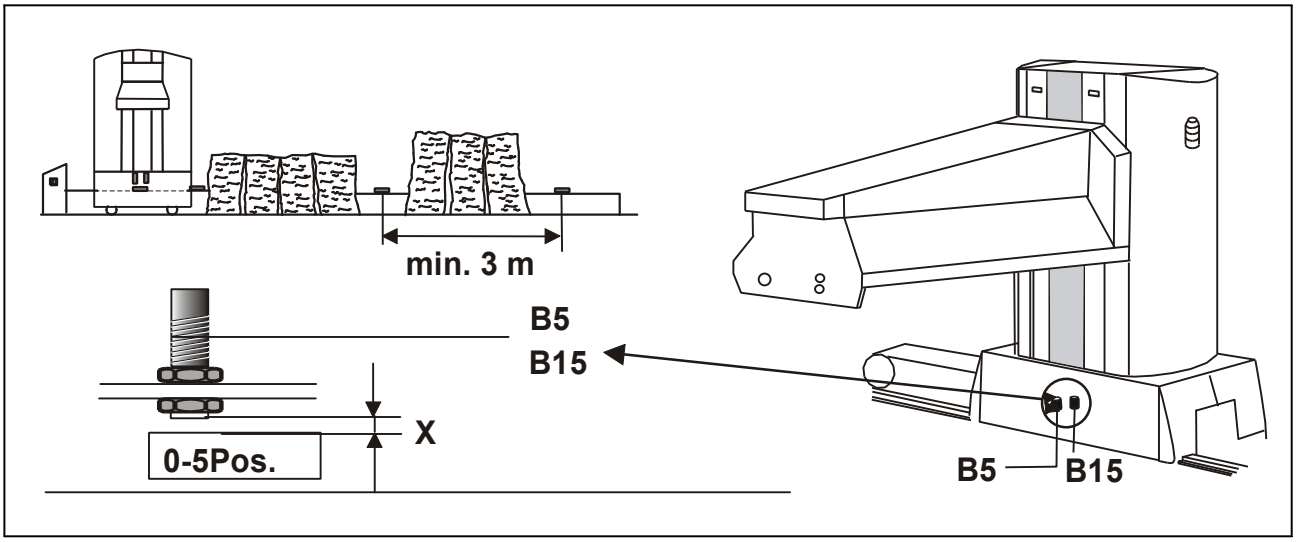
7.2.2.1 Setting positions for the bale groups

Overview of the proximity switches, Page 3/10

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

The machine is "informed" of the location of the bale groups via the position sliders.

Setting B5 and B15 proximity switches

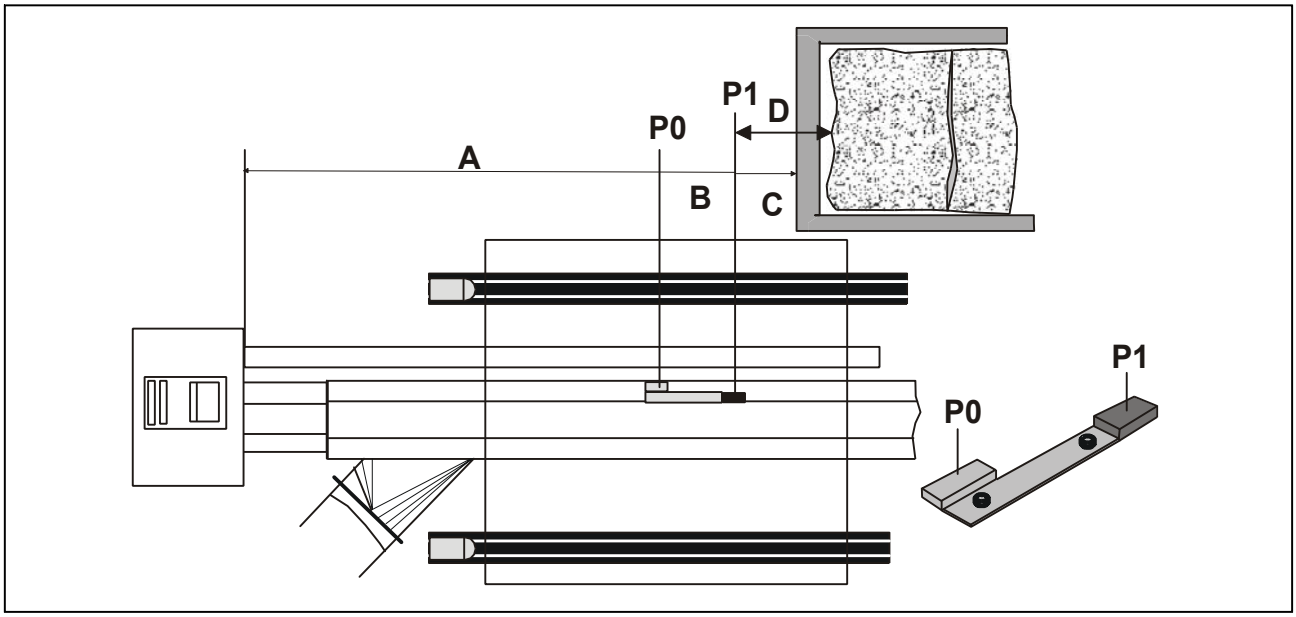


– The dimension (X) is used to set the B5 and B15 proximity switches.

Note: B5 is responsible for the zero position and B 15 for the positions P1 to P5. Check B15 over the entire length of the machinery. The distance changes a little, depending on whether the take-off unit is positioned on the right or left. Hence, both sides need to be checked and, if need be, a mean value is used for the setting.

Specification "B" for the proximity switches B5 and B15	3.5 mm (min. 2.5, max. 4.5)

Setting the position sliders



– The position cam (P0) for the zero position has to be set in such a way that the UNIfloc will not run into the collision buffer at high speed.

Note: The position slider (P1) must not be further away than the distance (D) from the first bale. This ensures that the entire take-off unit is positioned above the bale during the scanning process.

Specifications for the position slides

Specification A	min. 2150 mm
Specification B	min. 180 mm
Specification C	min. 150 mm
Specification D	max. 500 mm

– All other position sliders are placed in the middle of two bale groups. The position sliders for the bale groups are placed on the inside of the plate edge.

Note: The following minimum clearance between two position sliders must be observed.

Minimum distance of position sliders	3 m (min. 3, max. none)

Finishing

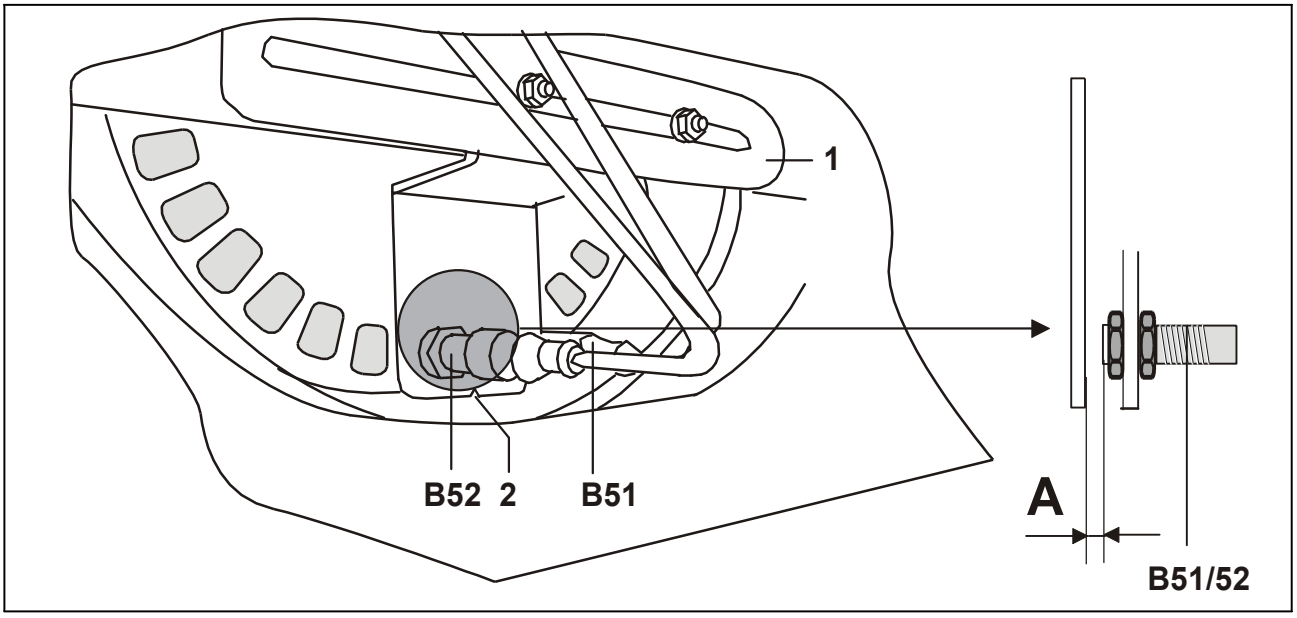
– Following the scanning process, do not move the position sliders any more.

7.2.3 Longitudinal position sensor of the chassis

7.2.3.1 Setting proximity switches for length measurement

Overview of the proximity switches, Page 3/10

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.



The proximity switches scan the transmitter disc at the tension roller by the entrance to the duct. The pulses are counted up and down again, according to direction of motion. The zero point is in the initial position "P0". These pulses are needed for "Bale profiling".

Sequence of steps

– Set the angle (1) in such a way that the middle of both proximity switches stands directly beneath the centre of the tension roller.
Note: The notch (2) marks the centre of the holder

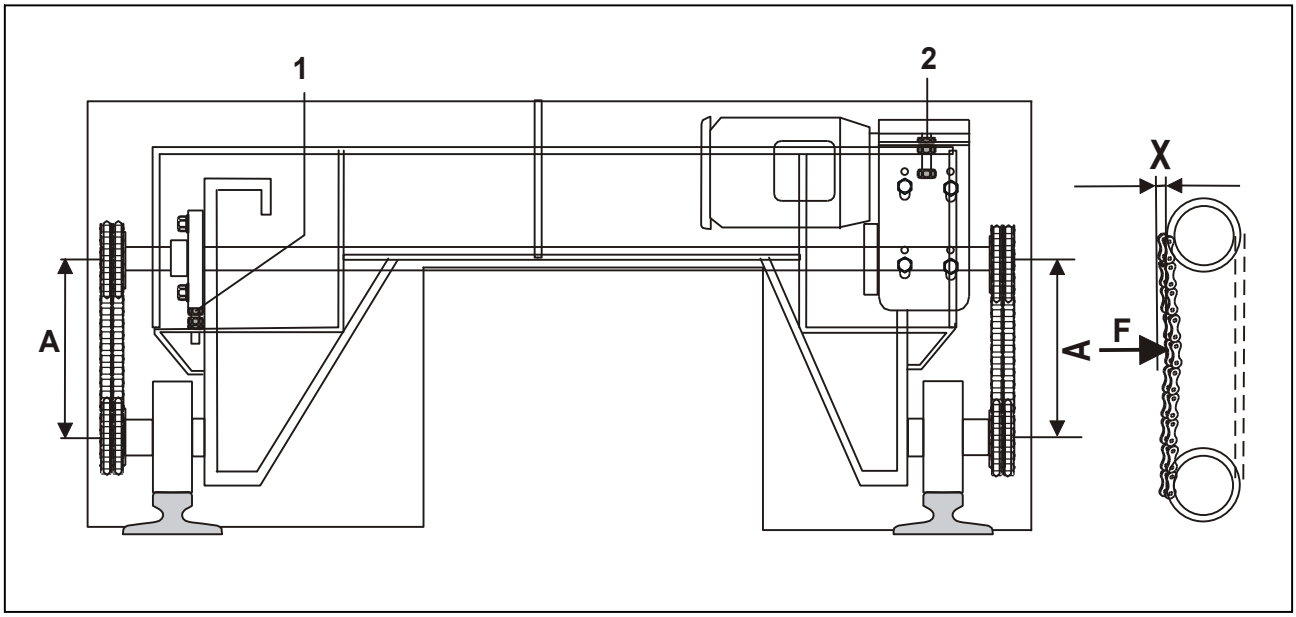
– Use the following specification to set the proximity switch.

Specification "A" Length measurement	1.5 mm (min. 0.5, max. 2.5)

7.3 Chassis drive

7.3.1 Tightening the drive chains

Mechanical settings, Page 3/7



A tensioning device (1) and (2) is available for all four drive wheels.

Setting aim: Make sure that the distances between the two axles (A) are the same when tightening.

Sequence of steps

– Apply an inward force (F) to the slack span of the chain so that the dimension (X) is attained.

Note: The chains must not be stretched to a taut state.

Dimension "X"

Force "F": 150 N	12 mm

8 Running rail, flock feeder channel, and material discharge

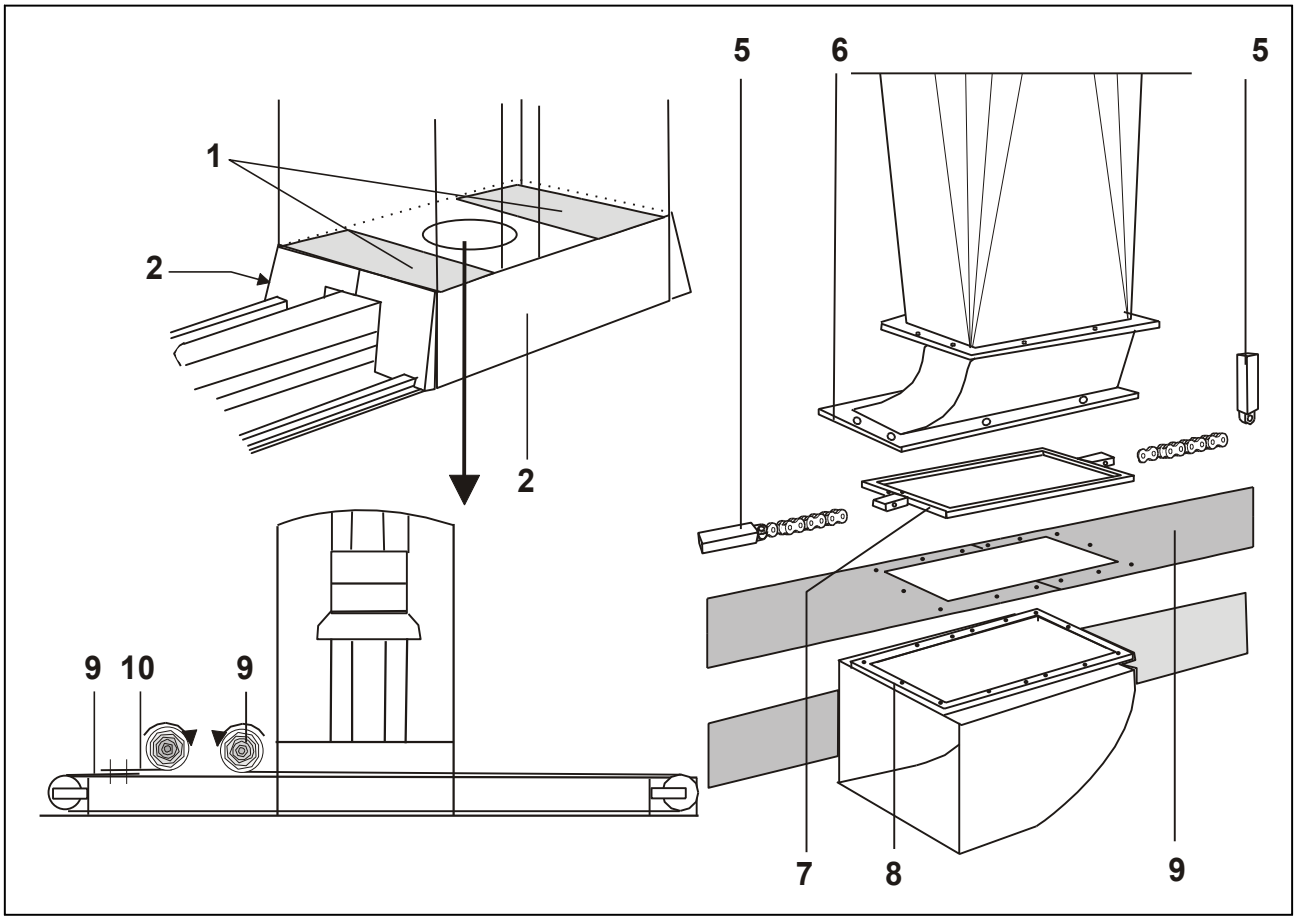
8.1 Cover band of the flock feeder channel

8.1.1 Replace cover belt

Mechanical settings, Page 3/7
Removing cover belt, Page 6/68
Install the new cover belt., Page 6/69

8.1.2 Removing cover belt

Sequence of steps



WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

– Remove the lateral covers (2) on the left and right.

– Turn the rotating tower sufficiently to allow the covers (1) on the traction drive to be removed.

– Remove the traction drive support (5).

– Separate the deflector (6) from the frame (7).

– Pull the cover belt (9) out from beneath the rotating tower sufficiently so that the flange connection (8) can be reached.

– Slacken the conveyor belt.

– Separate flange connection (8) and (7).

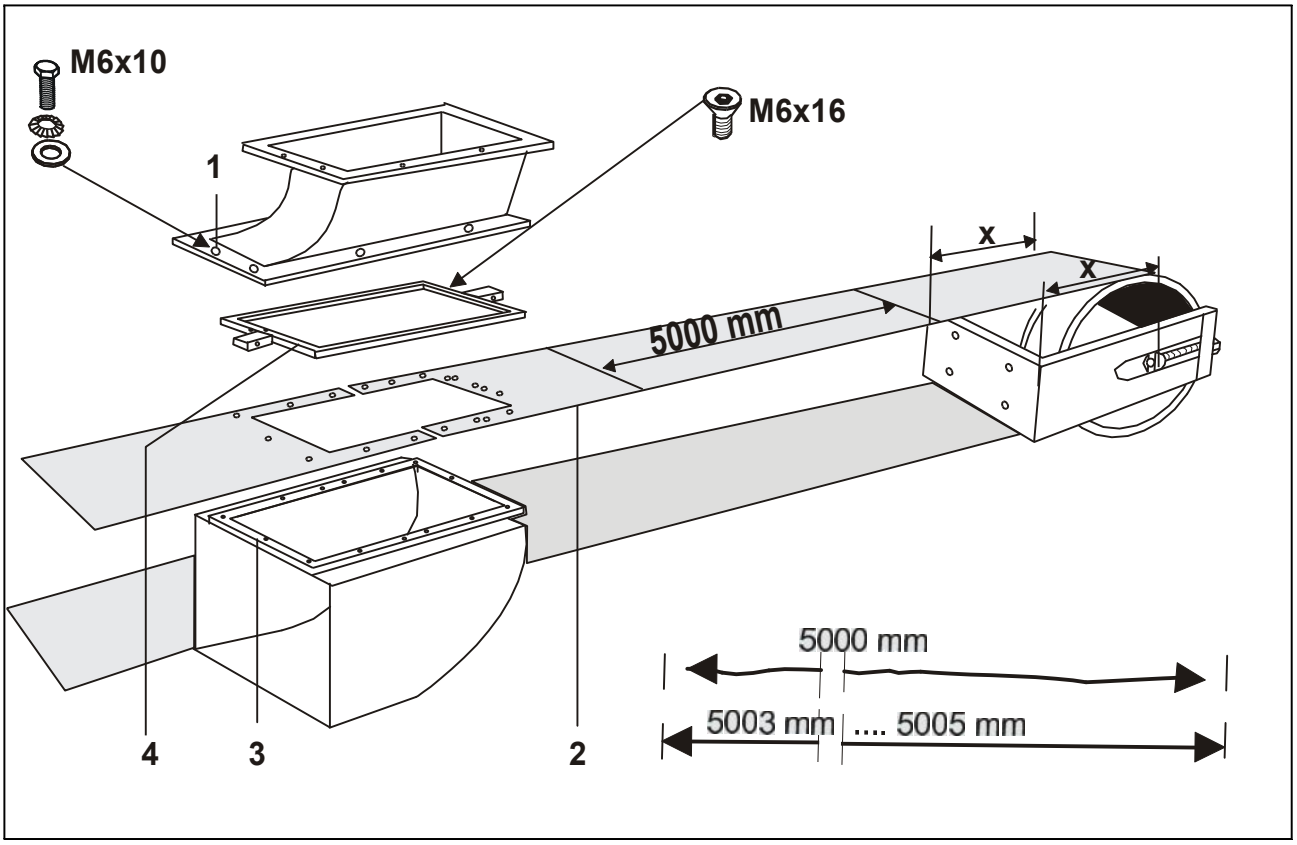
– Connect the defective cover belt (9) to the new cover belt (10) using screws.

– Using the defective cover belt (9), pull the new cover belt under the duct and the machine.

8.1.3 Install the new cover belt.

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

Note: The defective belt is attached to the new cover belt.
Sequence of steps



– Use the tension screws at the front and the rear to pull back the shafts to the correct distance (X).

– Draw in the cover belt (2).

– Clamp the cover belt (2) between the deflection piece (3) and the frame (4).

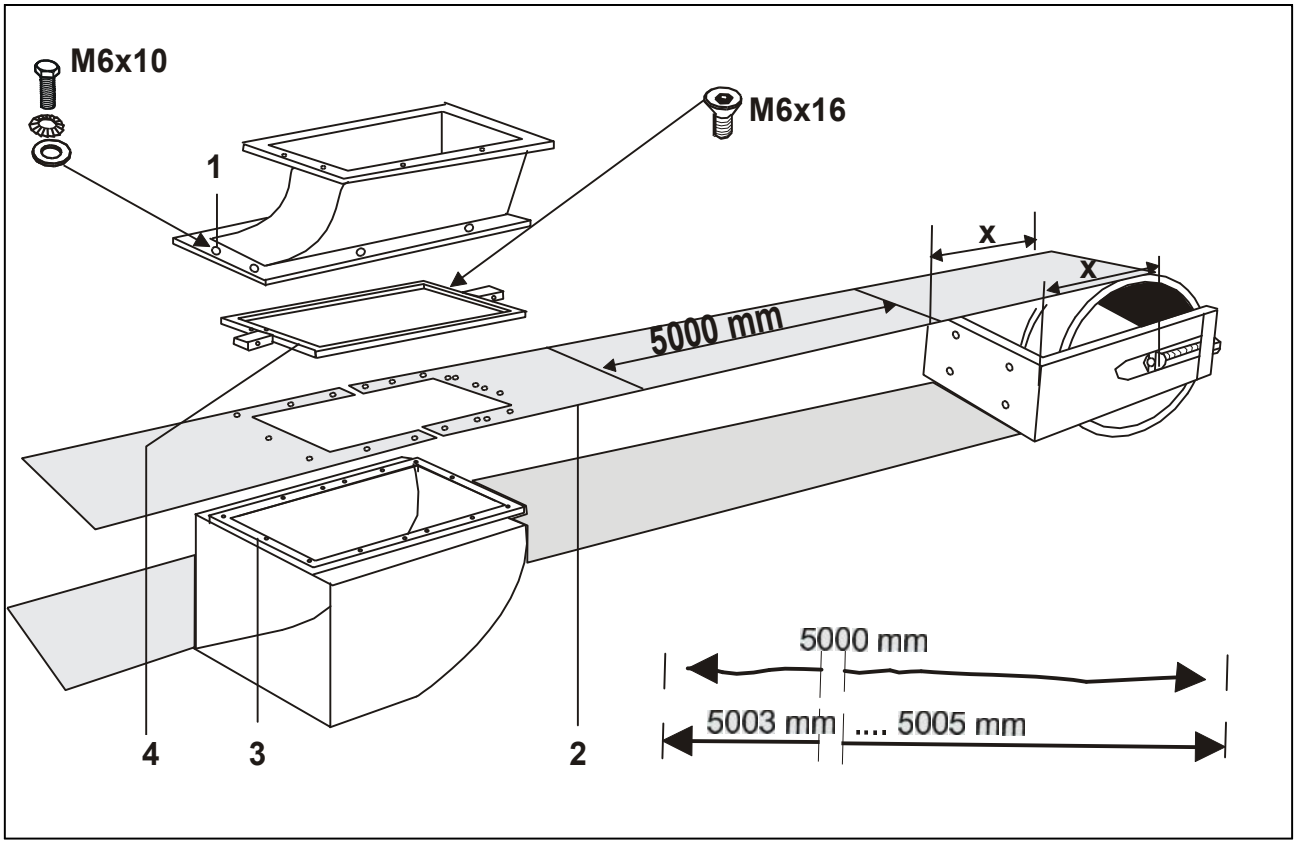
– Screw on the joint adaptor (1).

– Slightly pre-tension the cover belt so that it rests loosely against the guide rails but in a straight line.

– Place the deflection piece (3) in the centre of the tuft duct and in a longitudinal direction.

– Add two markings to the loose cover belt at the deflection piece, with a distance of 5000 mm between the markings.

– Tighten the cover belt evenly on both sides, front and rear, until the distance between the markings lies between 5003 and 5005 mm.
Note: The dimension (X) must be identical on the left- and right-hand sides, as well as at the front and rear.



– Move the cover belt to and fro with the hand and check the belt running. If necessary, correct the dimension (X), depending on the belt running behaviour.

  Note: After the start-up procedure, check the belt running frequently and if necessary correct the dimension (X) in small steps.

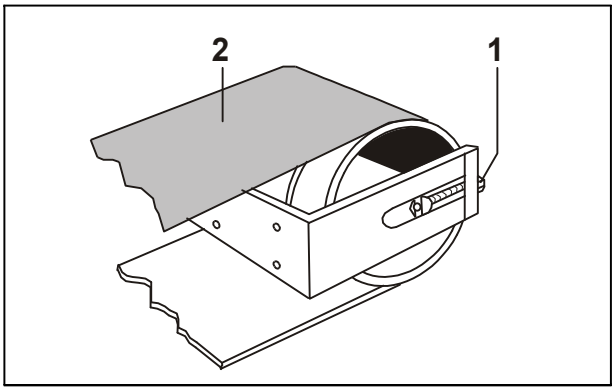
  ☞ Tighten the cover band and correct the run of the band, Page 6/71

8.1.4 Tighten the cover band and correct the run of the band

Mechanical settings, Page 3/7

WARNING
If the main switch is on, the machine can be set in motion.
Switch off main switch Q10 and secure with padlock.

Mark the cover band and tighten



– Mark the following value on the slightly taut (i.e. with no unevenness) cover belt (2).

Marking of the loose cover band	5000 mm

– The cover band (2) is to be tightened via the screws/bolts (1) on the left and on the right at the following marked length.

Note: The cover belt must be tightened at both ends of the duct.

Tension marks for the cover belt after being tightened.

Marking in millimetres	5003 - 5005 mm
Extended length as a percentage	0.06 - 0.1 %

Correct the run of the band

– **Prerequisite:** If the band runs off to one side, you can correct it by tightening one side.
Runs off to the right --> Loosen tightening on right or left.

– Runs off to the left --> Loosen tightening on left or right.
Note: Do not overtighten the cover band.

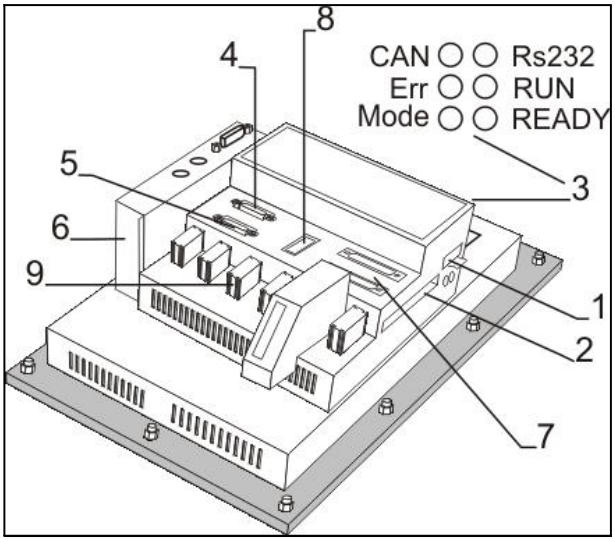
9 Central systems

9.1 Controller

9.1.1 Basic modules

9.1.1.1 Description

Structure



The control system includes the following interfaces and modules:

1: Battery shelf
2: PCMCIA slot
3: 6 status LED's
4: CAN interface
5: RS232 interface
6: Ethernet interface
7: Digital in and outputs
8: 24 V DC power supply
9: Expansion slots for additional IO modules

Purpose: Controls of the machine

The machine control system contains the program for the operating unit as well as for the control unit of the machine.
Controls all machine functions.

Condition: Status indicator of the control system via LED's

Die 6 LED's indicate the different possible conditions of the control system.

⟹ If the condition of the control system should change, this is displayed by the LED's.

☞ Display CPU status, display on the basic module of the control unit, Page 2/23

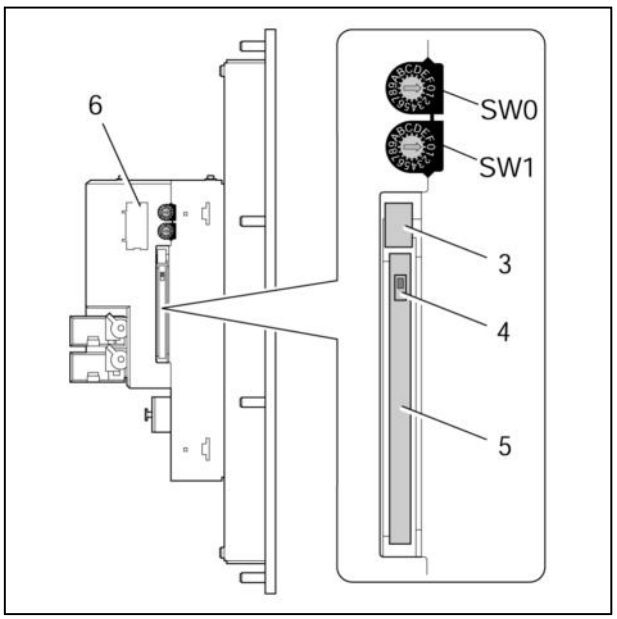
9.1.1.2 Carrying out a cold start

Control system, Page 3/11
Description Basic modules , Page 6/73

The control system is returned to its initial state via a cold start.

Setting aim: A cold start means that the working memory of the machine control is erased. The input values are reset to the default values (default settings). A cold start may become necessary if the control system does not start correctly.

Sequence of steps



– **Prerequisite:** The main switch has to be switched off.
Remove the cover from the control unit.

– Set the rotary switch (SW0) and (SW1).

Switch position for cold start

SW0	F
SW1	F

– Turn the main switch on and then turn it off again after about 20 seconds.

– Set the rotary switch (SW0) and (SW1).

Switch positions for normal operation

SW0	1
SW1	0

– Turn on the main switch again.

– Now proceed as described on data screen "8.1 Cold start procedure".

Finishing

– Fasten down the cover of the control unit again.

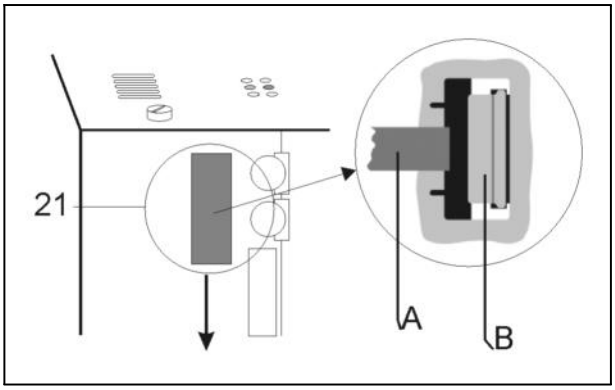
9.1.1.3 Change battery of control system

Control system, Page 3/11
Removing the battery from the control system, Page 6/75
Mounting the battery in the control system, Page 6/75

9.1.1.4 Removing the battery from the control system

Note: The data (machine settings, shift data) in the data memory are lost if the battery is changed in voltage-free state!

Sequence of steps



– Before starting to work on electronic components always make sure that static electricity is discharged by touching the machine earth cable or other ground connections. If this is not done, the components may be destroyed.

– Use a screwdriver to remove the cover (21) of the battery.

– Pull the pullout strip (A) and the battery (C) will jump out of its holder.

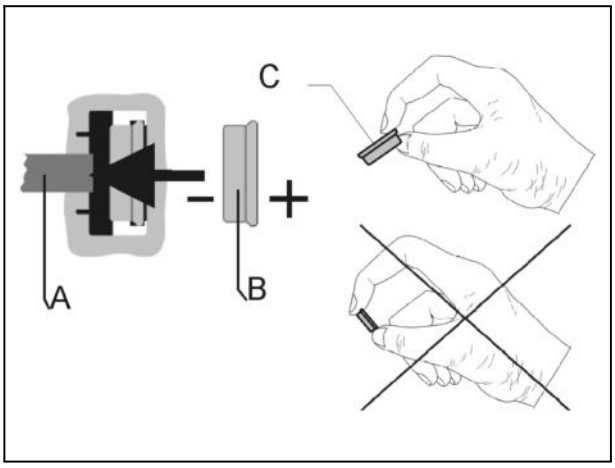
9.1.1.5 Mounting the battery in the control system

Note: Do not grasp the battery with nippers or non-insulated pincers. Risk of short circuit.

Note: The battery may only be touched by hand on the front (C)

Note: Lithium batteries are considered to be special waste, and must therefore be disposed of in an appropriate manner.

Sequence of steps



– Insert new lithium battery (B) with correct polarity (-+) in the battery compartment. To do so pull the extracting strip (A) to the left and insert the battery in the battery compartment with the "+"-end to the right.

  Note: To allow the battery to be pulled out again later the extraction strip must (A) be on the left of the battery.

– Put the projecting end of the strip (A) underneath the battery so that it does not stick out of the battery compartment.

– Mount cover. First put the bottom end of the cover in the opening of the battery compartment. The top end snaps onto the cover with a little pressure.

9.1.1.6 Software exchange between memory card and control system

Control system, Page 3/11

Copy software from the memory card onto the control system or vice versa. A memory card (PCMCIA card) is required with a minimum of 4MB.

Preparatory work

– Make a note of the poisiotn of the two rotary switches SW0 and SW1 so that they can be put back into their original position after copying.

– If the memory card is to be overwritten the write-protection must be off.

Switch off write protection, Page 6/77

– You will have to record/write down all the settings contained in the data screens, if the control system is to be overwritten.

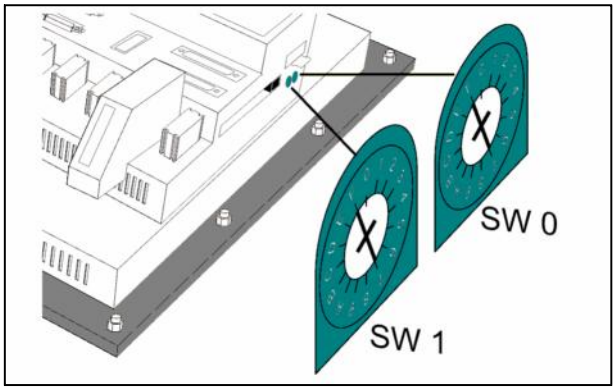
Sequence of steps

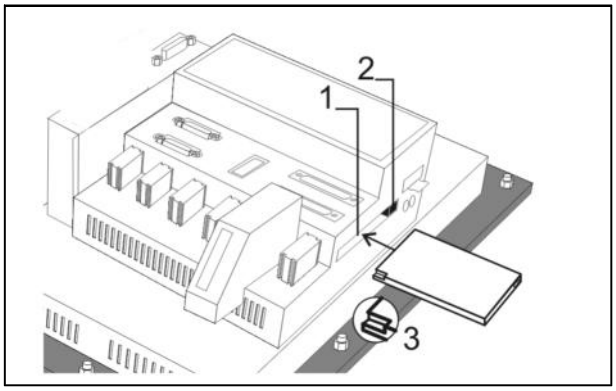
– Turn off the main switch of the machine.

– Set the rotary switches SW0 and SW1 according to the direction of the data exchange.

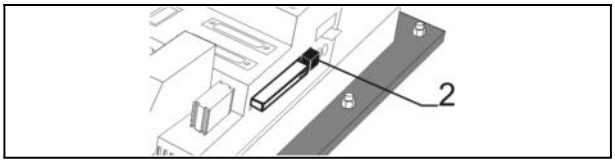
Rotary switch setting for software exchange

From memory card to control system	SW0=4 and SW1=
From control system to memory card	SW0=2 and SW1=





– Insert the memory card in the slot (1). The cutout (3) in the memory card has to be located on the side opposite to the ejection key (2).



Inserted correctly

The memory card is not inserted correctly unles the ejection key (2) is out.

– Turn on the main switch again.

– Watch the status LED. The LEDs "Mode", Ready" and "Run" are lit up during the copying process.

– Wait until the RUN LED (green) and the READY LED (yellow) are flashing. Then the software update is finished.
Note: If the ERROR LED (red) flashes, the software update was not successful. If necessary repeat the procedure or contact Rieter service.

– Turn off the main switch of the machine.

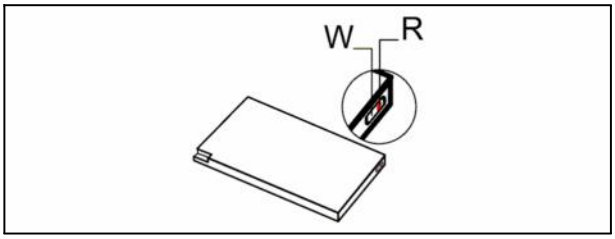
– Put the rotary switches SW0 and SW1 back to the original setting

– Eject the memory card by pressing the eject key (2) and remove.

– Turn on the main switch again.

– **Prerequisite:** If the control system has been overwritten:
Re-enter the settings in the data screens.
Note: You can see from the software version whether copying has been successful,

9.1.1.7 Switch off write protection



The small switch on the memory card allows the write protection to be switched on and off.

Setting aim: If data need to be transferred to the memory card the write-protection must be switched off.

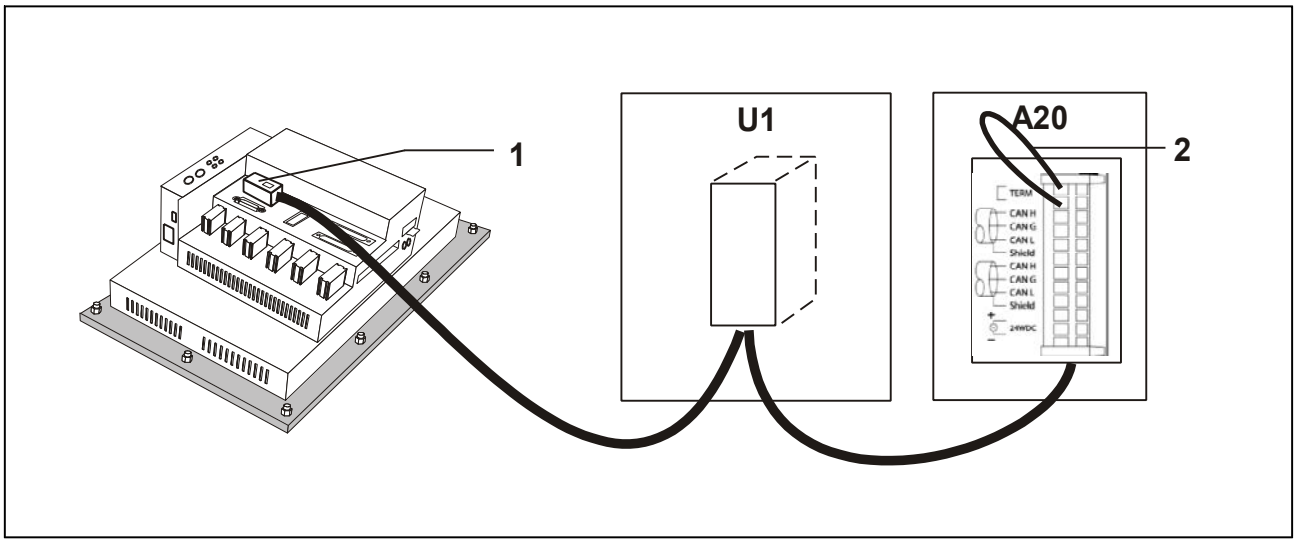
Protective writing

No	Position (R) = "read"
off	Position (W) = "write"

9.1.2 Bus systems

9.1.2.1 Setting or wiring terminators for the CAN bus

Control system, Page 3/11



Setting aim: A terminating resistor must be present at the first and last connection so that the CAN-Bus can function correctly.

Setting the terminator at the sub-D connector

– The switch on a D-Sub plug (1) must be set on "ON".

Wire the terminator.

– On the module (A20), a bridge (2) to the “Term” terminals must be fitted.

Finishing

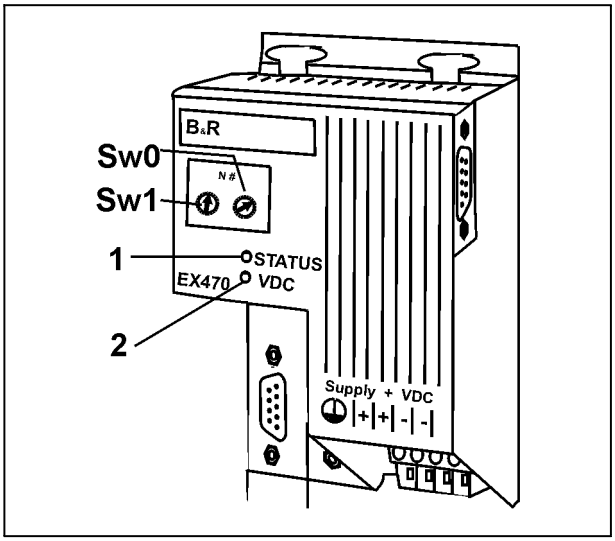
– Check that a terminating resistor has only been wired in on the first and last connection.

9.1.2.2 Setting the CAN node address on the CAN node module EX470

Control system, Page 3/11

Use the two rotary switches to set the node address for the CAN bus.

Sequence of steps



– Set the rotary switch (SW0) and (SW1).

CAN node address

SW0	2
SW1	4

– You may have to check the LED status of the CAN node module EX470.

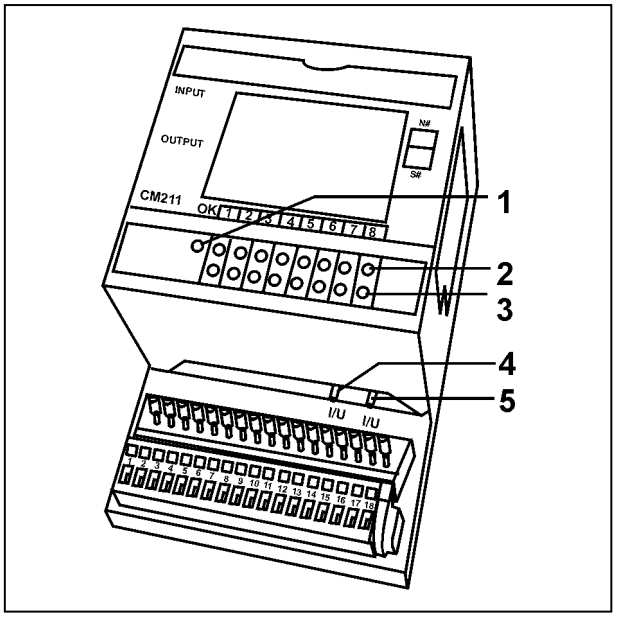
Display LED conditions of the CAN node module EX470, Page 2/24

9.1.3 External IO cards

9.1.3.1 Check combination module CM211

Testing input/output of the combination module CM211 using LED's

The condition of the eight inputs/outputs can be tested with the 16 LED's.



– Die 8 LED's (2) indicate the condition of the inputs. If the LED lights green, then the corresponding input has been set.

☞ Display LED conditions of the combination module CM211, Page 2/25

– Die 8 LED's (3) indicate the condition of the outputs. If the LED lights yellow, then the corresponding output has been set.

Action

Check of the LED's indicates a fault.

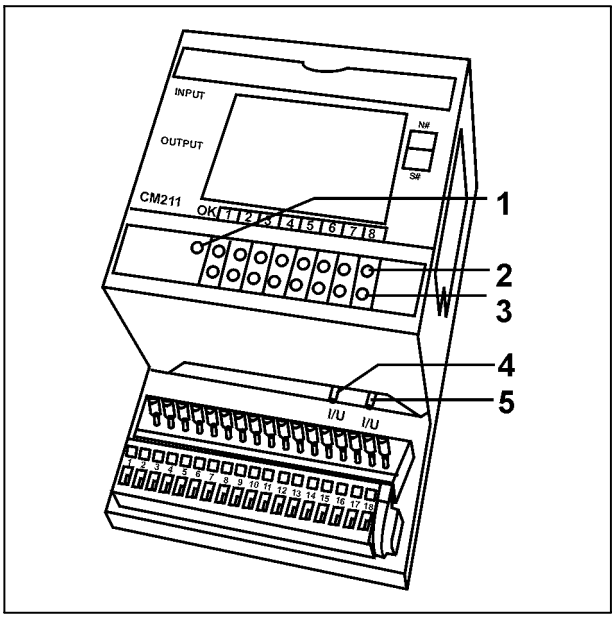
– Possibly replace module or feed and check the wiring.

9.1.3.2 How to properly set the DIL switch on the CM211 combination module

Control system, Page 3/11

The settings on the two DIL switches determine how the input/outputs are switched. (I = current, U = rated voltage)

Sequence of steps



– Set both DIL switches (4) and (5).

DIL switch setting CM211

4	Setting "I"
5	Setting "I"

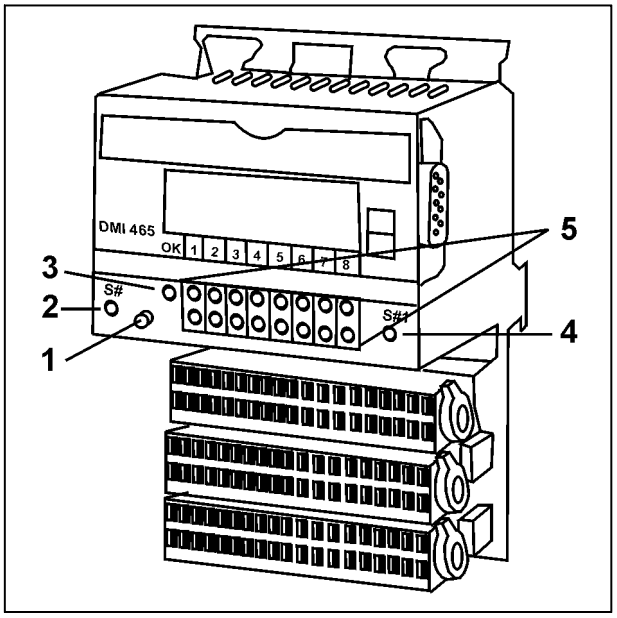
– You may have to check the LED status of the CM211 combination module.

Display LED conditions of the combination module CM211, Page 2/25

9.1.3.3 Checking the digital blend module DM465

Testing the digital blend module DM465 and its input/output using LED's

The module and the condition of the inputs/outputs can be tested with the LED's.



– The 16 LEDs (5) indicate the status of the first 8 inputs and outputs. Use switch (1) to change the LEDs to display the status of the second 8 inputs and outputs. The green LEDs (5) indicate the respective inputs. The yellow LEDs (5) indicate the respective outputs.

☞ Display LED conditions of the digital blend module DM465, Page 2/25

– Using LED (2) , (3) and (4) check that the module is functioning correctly in service.

☞ Display LED conditions of the digital blend module DM465, Page 2/25

Action

Check of the LED indicates a fault.

– Possibly replace module or feed and check the wiring.

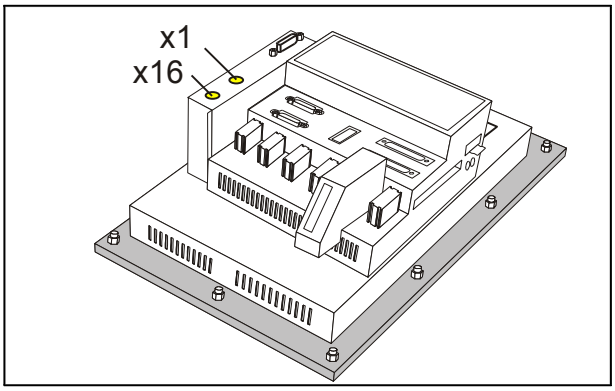
10 Control technique

10.1 Basic module of the control system

10.1.1 Ethernet interface 3IF of the control system

10.1.1.1 Setting the IP address

Control system, Page 3/11



The IP address is the communication address in the Ethernet network.
The last two digits of the IP address are not fixed, and must be set according to the (x16) and (x1) switches.
Setting aim: A unique IP address must be set for each machine in the Ethernet network.

Interface to external system	SPIDERweb

Setting the IP address

dez	hex	dez	hex	dez	hex	dez	hex
0	00	16	10	32	20	48	30
1	01	17	11	33	21	49	31
2	02	18	12	34	22	50	32
3	03	19	13	35	23	51	33
4	04	20	14	36	24	52	34
5	05	21	15	37	25	53	35
6	06	22	16	38	26	54	36
7	07	23	17	39	27	55	37
8	08	24	18	40	28	56	38
9	09	25	19	41	29	57	39
10	0A	26	1A	42	2A	58	3A
11	0B	27	1B	43	2B	59	3B
12	0C	28	1C	44	2C	60	3C
13	0D	29	1D	45	2D	61	3D
14	0E	30	1E	46	2E	62	3E
15	0F	31	1F	47	2F	63	3F

– Switch off the main switch.

– Use both ROTARY switches to set the last two digits. Example: if the IP address is 172.27.10.21, then the last two digits are set based on the decimal number “21”.
Note: This requires setting the (x16) rotary switch to position “1” and the (x1) rotary switch to position “5”. See adjacent table; “15” in hexadecimal form = “21” in decimal form.
ROTARY switch

x16	Second-to-last position
x1	Last position

– Turn on the main switch again.

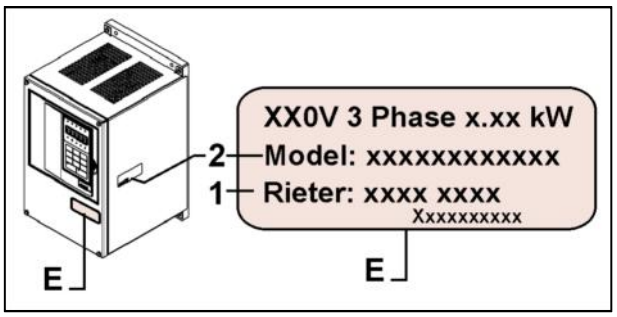
– Check the IP address in the following data screen.

Data screen	30.1

10.2 Frequency converter

10.2.1 Identifying the frequency converter

V7 frequency converter, G/H, Page 3/12



The Rieter part number (1) on the attached adhesive label (E) must agree with the part number of the corresponding device in the electrical documentation. The model designation (2) must agree with the designation on the manufacturer label found on the side of the frequency converter.

10.2.2 Regenerating the replacement frequency converter

DANGER
After the appliance has been disconnected from the mains, the intermediate circuit remains live at first (intermediate circuit capacitor).
Non-compliance may result in severe or even fatal injuries.
Trained, competent personnel only may carry out work on the control cabinet and on electrical installations.
It may take up to 10 minutes for the unit to discharge. Once the equipment is disconnected from the power supply, it is imperative you wait 10 minutes for it to discharge completely.
Before commencing work, check the tension voltage of the intermediate circuit. The voltage must have dropped to below 60 Volt.

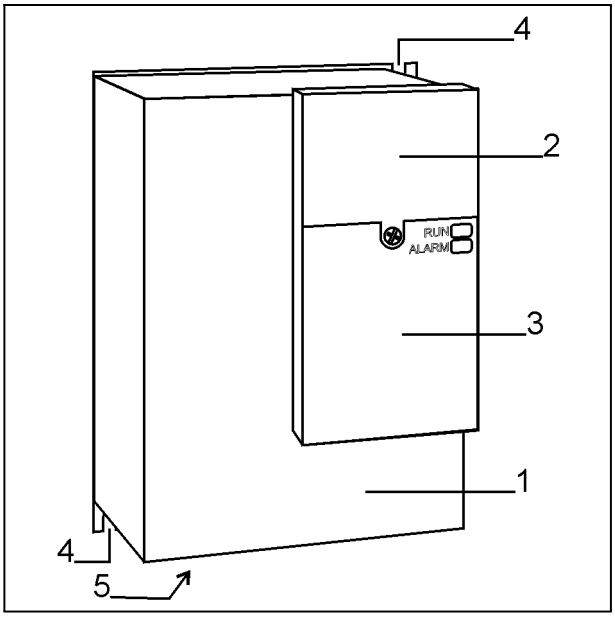
The replacement frequency converters held in storage must be connected to a mains supply for at least one hour every six months. This allows the internal component to regenerate themselves.

Setting aim: The replacement equipment can be put into service at any time.

10.2.3 Frequency converter

10.2.3.1 Description

Structure



1 Power unit
2 Operator interface panel
3 Cover
4 Bolts
5 Cable ducts

10.2.3.2 Replacing the frequency converter

☞ Removing the frequency converter, Page 6/86
☞ Installing the frequency inverter, Page 6/87

Note: Frequency converters are subject to natural aging effects. Frequency converters are to be replaced at regular intervals with inspected replacement equipment. Doing so effectively prevents equipment failure. Authorized RIETER Service Personnel only may service frequency converters. For replacement equipment / service: Please contact your nearest RIETER Service Center or RIETER Parts.

10.2.3.3 Removing the frequency converter

DANGER
After the appliance has been disconnected from the mains, the intermediate circuit remains live at first (intermediate circuit capacitor).
Non-compliance may result in severe or even fatal injuries.
Trained, competent personnel only may carry out work on the control cabinet and on electrical installations.
It may take up to 10 minutes for the unit to discharge. Once the equipment is disconnected from the power supply, it is imperative you wait 10 minutes for it to discharge completely.
Before commencing work, check the tension voltage of the intermediate circuit. The voltage must have dropped to below 60 Volt.

☞ Description Frequency converter, Page 6/85

Preparatory work

– Care must be taken to ensure that the discharge time was complied with.
  ☞ Reading off the charge indicator, Page 2/43

Disconnect the cable

Sequence of steps

– Check the labeling on the clamps and on the electric cable. Make sure that the cable can be properly connected when reassembling.
– Disconnect the power and control terminals.
– Disconnect the ground terminal.
– Disconnect the four bolts. The housing can be lifted out in a single piece.

10.2.3.4 Installing the frequency inverter

WARNING
When the main switch is on, elements after the main switch are still live.
Injury due to electric shock
Turn off the main switch and secure with a padlock before working on any electric installations.

☞ Description Frequency converter, Page 6/85

Sequence of steps

– Before making changes, check that the device is available.
☞ Identifying the frequency converter, Page 6/84

– Configure the device for mounting in the machine.
☞ Configuring the V7 frequency converter, H/G , Page 6/88

– Carry out adaptations to the cooling system.
☞ Adjusting to the cooling system, Page 6/89

– Install the device. Proceed in the reverse order as followed on removal.

Connect cable
Sequence of steps

– Proceed in the reverse order as followed on removal.

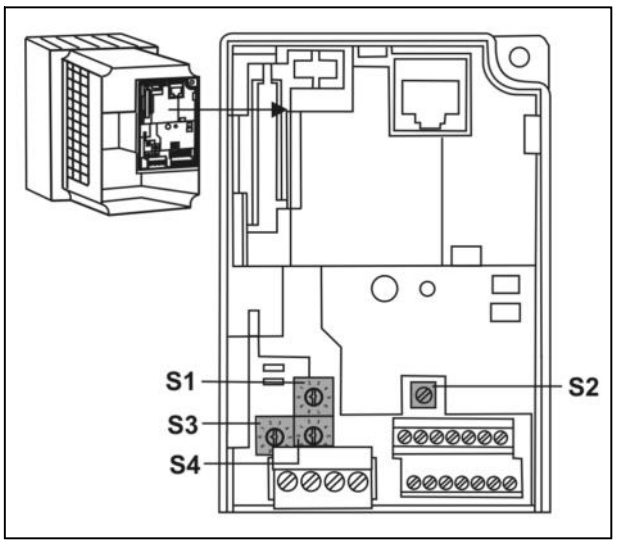
– Connect the control, power and earth cables following the cable designators.
Note: Observe electrics manual.

10.2.3.5 Configuring the V7 frequency converter, H/G

V7 frequency converter, G/H, Page 3/12

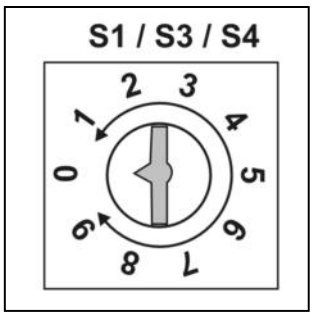
DANGER
After the appliance has been disconnected from the mains, the intermediate circuit remains live at first (intermediate circuit capacitor).
Non-compliance may result in severe or even fatal injuries.
Trained, competent personnel only may carry out work on the control cabinet and on electrical installations.
It may take up to 10 minutes for the unit to discharge. Once the equipment is disconnected from the power supply, it is imperative you wait 10 minutes for it to discharge completely.
Before commencing work, check the tension voltage of the intermediate circuit. The voltage must have dropped to below 60 Volt.

Description Frequency converter, Page 6/85



The switches (S1...S4) on the control board are used to configure the frequency converter.

Set the switches S1 / S3 / S4



– Set the S1 switch.
S1 switch position (baud):

U1 frequency converter	4

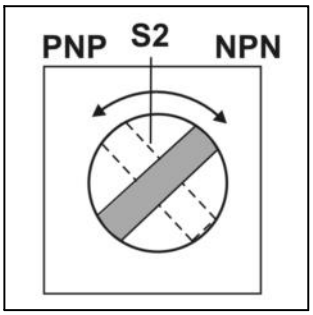
– Set the S3 switch.
S3 switch position (node ID, values between 10 and 19, incl.):

U1 frequency converter	0

– Set the S4 switch.
S4 switch position (node ID, values between 1 and 9, incl.):

U1 frequency converter	3

Set the S2 switch.



– Adjust switch (S2).

S2 switch position (input polarity):

U1 frequency converter	NPN

10.2.3.6 Adjusting to the cooling system

V7 frequency converter, G/H, Page 3/12

Adjust the frequency inverter to the cooling system which is fitted in the machine.

Heat transfer plate

– Remove residues of the old heat conducting paste from the heat transfer plate using a spatula.
Note: Remove the last traces using a solvent.

– Check that the transfer plate is not damaged. Any obvious rough areas should be removed carefully using a file or emery paper on them.

– **Prerequisite:** Before installing the device:
Coat the transfer plate with conducting paste.
Requirements for the heat conducting paste

Composition	Silicone-free
Thermal conductivity	0.9 - 1.0 W/mK

11 Torque standard

Screw dimension	Strength class	torque	Clamping strength
M4	8.8	3.1 Nm	3.9 kN
	10.9	4.5 Nm	5.7 kN
	12.9	5.3 Nm	6.7 kN
M5	8.8	6.1 Nm	6.4 kN
	10.9	8.9 Nm	8.3 kN
	12.9	10.4 Nm	10.9 kN
M6	8.8	10.4 Nm	9.0 kN
	10.9	15.5 Nm	13.2 kN
	12.9	18.0 Nm	15.4 kN
M8	8.8	25.0 Nm	16.5 kN
	10.9	37.0 Nm	24.2 kN
	12.9	43.0 Nm	28.5 kN
M10	8.8	51.0 Nm	26.0 kN
	10.9	75.0 Nm	38.5 kN
	12.9	87.0 Nm	45.0 kN
M12	8.8	87.0 Nm	38.5 kN
	10.9	130.0 Nm	56.0 kN
	12.9	150.0 Nm	66.0 kN
M16	8.8	215.0 Nm	72.0 kN
	10.9	310.0 Nm	106.0 kN
	12.9	370.0 Nm	124.0 kN
M20	8.8	430.0 Nm	117.0 kN
	10.9	620.0 Nm	166.0 kN
	12.9	720.0 Nm	194.0 kN
M24	8.8	740.0 Nm	168.0 kN
	10.9	1080.0 Nm	239.0 kN
	12.9	1240.0 Nm	280.0 kN

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Appendix

*** ERROR (Appendix): Appendix not implemented!

A11

General Part 1

Operation Part 2

Setting up, preparing, adjusting Part 3

Maintenance Part 4

Troubleshooting Part 5

Description of machine subassemblies Part 6

Keyword index Part 7

Appendix Part 8

Operating instructions received with the content indicated

Customer . . . . . .

Date . . . . . .

signature . . . . . .

return to Installation Office

15.09.2009 - en - V4 10494610

of the bales. end